ON THE

ELEMENTS

OF

PICTURESQUE SCENERY,

CONSIDERED WITH REFERENCE TO

LANDSCAPE PAINTING.

BY

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LONDON:
Printed for Private Distribution,
BY
GEORGE BARCLAY, CASTLE STREET, LEICESTER SQUARE.

M.DCCC.XLVI.

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PREFACE.

The pages which are now offered to a few of my friends, are the result of the inexhaustible interest afforded me by the cultivation of the Fine Arts, rather than of any fixed plan of writing on the subject. The delightful occupation which studies from nature and from the old masters afford, especially in classic Italy, having been checked by the fatigue resulting from an unusual exercise of the eyes,—that of observing the effects of nature, and of noting down their results, was in a great measure substituted to the more satisfactory one of rendering them in colour. But the effects which excited my interest seemed to multiply in proportion to the attention I bestowed on them; and the increasing difficulty of the task made me look forward, as an encouragement, to some future prospect of usefulness. To which motives for not confining the notes to my own portfolio, was added that of improvement; being persuaded that the best means of attaining this object would be to submit my remarks to the opinion of others.

In the plan which at first suggested itself, perspective, light and shade, contrasts, and other effects more immediately connected with painting, were intended to form the principal subjects of the work, combined with a description of the chief objects and appearances of nature; but owing to the more advanced state of this last portion, and to the abundance of matter, it appeared preferable to form it into a separate volume, intermingled occasionally with applications of the objects described, to the art of painting; and although these applications often unite together subjects which in nature are distinct, I have been chiefly guided in the arrangement of the parts by the relations which the objects described bear to one another in nature, although in many cases it has been equally unavoidable to create wider distinctions between some objects, and to establish a closer connexion between others, than would be exactly consistent with their natural distribution. Those of my friends who are personally acquainted with my brother, and to whom his superior scientific acquirements are consequently known, will, I have no doubt, join in my deep regret, that weakness of health has compelled him to limit to a small number his contributions, which, under other circumstances, would have formed so interesting and valuable an addition to the volume.

The method of dictating, which I have been compelled to adopt, will, I hope, be deemed a claim to indulgence; especially for repetitions, so liable to occur in subjects intimately connected and interwoven. I was chiefly assisted in this occupation by my travelling companion, Mr. George Shilling; and it is with no inconsiderable pleasure that I here allude to a degree of zeal and interest on the part of my amiable young friend, which greatly contributed to the pleasures of my occupation. I am similarly indebted to Mr. David Verdan, whose unwearied perseverance it would be difficult duly to appreciate, and to whose observations I am indebted for some of the remarks connected with Switzerland, his native country.

It is, perhaps, chiefly as a guide to nature that a work connected with the art of painting may prove available to those who make the former their study. The comparative uselessness of books on painting is, I believe, not an uncommon remark of persons practically connected with it; and, doubtless, the advantages which are derived from rules are small, compared with those which are the result of direct application: but it does not follow that no preparatory and beneficial influence is to be anticipated from this source. This unfavourable opinion appears to me to arise from a misconception of the nature of the advantages to be derived from books on art. It is too often expected that they should instruct how to paint; whereas their object is, in most cases, to form the taste and enlighten the mind on the general bearings of the subject. Further, a correct knowledge of every form and aspect under which nature presents herself, is a most efficient means for checking habits of mannerism, and dissipating prejudiced conceptions. An acquaintance with the principles which govern the effects of nature, teaches us to detect a cause for every result, and to appreciate in each case its exact amount of influence. We are thus enabled to correct errors which have stepped into our subject, by tracing to their very source the principles on which the perfection of that subject depends.

If some of my remarks have but a limited application to painting, it appeared to me that a strict adherence to the subject became less necessary, since, publication not being intended, my observations were not destined exclusively for one class of readers.

The great difficulty of conveying, by means of views and diagrams, a distinct idea of any particular and complex effect, induced me to limit them to a small number. With respect to trees, they have been illustrated in a most satisfactory manner in various works; their character and touch have been rendered with remarkable truth and success by Mr. Harding, in his work entitled "The Park and Forest." The studies of trees of Mr. George Barnard are likewise particularly calculated to afford that kind of improvement which is derived from practice; and as works, both descriptive and illustrative, may be mentioned, Mr. Selby's "British Forest Trees," and the well-known work, by Mr. Loudon, entitled "Arboretum Britannicum."

ERRATA.

Page 2, line 19, *for* gaudeous *read* gorgeous.
10, line 12, *for* degree of roughness *read* degree of smoothness.
35, line 17, *for* appearing *read* appears.
45, line 5, *for* Yungfrau *read* Jungfrau.
115, line 23, *for* beech *read* birch.
287, line 13, *for* light *read* lighter.
314, line 23, *for* productions *read* production.

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CONTENTS.

PAGE

ON FORM 1

ON THE REFLEXION OF LIGHT 5

ON COLOUR 12

MOUNTAINS.

GENERAL REMARKS 19

THEIR INFLUENCE IN THE LANDSCAPE . . . 24

FORMS OF MOUNTAINS 26

ELEVATION 36

DETAILS 40

TINTS 42

REMARKS ON SOME CHAINS OF MOUNTAINS . . 45

ROCKS.

THEIR PICTURESQUE CHARACTER 49

FORM AND DISPOSITION 50

COLOUR 63

VOLCANOES 69

EXTINCT VOLCANOES OF AUVERGNE 73

PAGE
GLACIERS 77
DISTANT ASPECT 79

TREES.

INTRODUCTION 83
IN CONNEXION WITH PAINTING 86
OUTLINE OF TREES AS SEEN IN THE DISTANCE . 96

DESCRIPTION OF TREES.

THE OAK 98
THE ELM 101
THE LIME 104
THE BEECH 106
THE HORNBEAM 108
THE ASH 109
THE MOUNTAIN-ASH 111
THE HORSE-CHESTNUT 112
THE SPANISH-CHESTNUT 113
THE MAPLE 114
THE PLANE 115
THE POPLARS 115
THE BIRCH 119
THE WILLOWS 120
THE ALDER, THORN, ETC. 123
INFLUENCE OF THE SEASONS ON THE APPEARANCE OF THE FOLIAGE 126
FIRS 128

REMARKS ON ALPINE VEGETATION.

FIRS COMMON TO THE ALPS 132
DECIDUOUS TREES 137
FRUIT-TREES 141
STYRIAN FORESTS 142
VEGETATION OF SOUTHERN EUROPE . . . 143

PAGE
BUILDINGS 157
THE ARTIFICIAL 160
THE ORNAMENTAL 162
VARIETY 163
PROPORTION 164
COLOUR 167

RUINS 168

FIGURES 177
COSTUME 185
FASHION 187
DETAILS OF COLOUR 189
GROUPING 190

WATER, AND ITS VARIOUS EFFECTS 193

COLOUR OF WATER 196
FIXED COLOUR 197
APPARENT COLOUR 201
TRANSPARENCY OF WATER 204

THE REFLEXION OF OBJECTS ON WATER . 208
TURBID WATER 215

WAVES.

FORM AND PROPAGATION 220
BREAKERS 226

SEA.

HORIZON 232
ASPECT OF THE SEA UNDER VARIOUS INFLUENCES . 235

LAKES 255

PAGE
RIVERS 263

WATERFALLS 267
LOW FALLS IN CANALS OR RIVERS 275
FOAM IN TORRENTS 277

ATMOSPHERE 281

CLOUDS 295
TRANSPARENCY 306
COLOUR 306
REMARKS ON THEIR COLOUR 314
PERSPECTIVE OF CLOUDS 322

FOGS AND MISTS 326

EFFECTS OF SMOKE 332

WIND AND STORMS 334
STORMS IN THE MOUNTAINS 342

RAIN 346
RAIN IN THE MOUNTAINS 350

SUNBEAMS 354

RECEDING PLANES 364
DISTANCE 365
MIDDLE DISTANCE 369
FOREGROUND 371

ON

THE ELEMENTS

OF

PICTURESQUE SCENERY,

&c. &c.

ON FORM,

AS CONSTITUTING, IN REFERENCE TO ART, THE MOST IMPORTANT CHARACTER OF OBJECTS.

VARIOUS images are presented through the eye to the mind. The sense of touch informs us, in the first place, that these images are not fancied, but real, having substance; which implies that they have extent; and being multifarious, and distinct from each other, they have limits, and consequently *form*. To vision, we owe the perception of their colour. We are, therefore, surrounded by substantial bodies, possessed of *form and colour*.

It is to form, more than to any other property, that these bodies owe the meaning which we attach, respectively, to each of them. This is more particularly the case with those bodies or objects which are necessary or serviceable to us, and with those which affect us in a durable manner. But to Colour, rather than to Form, should be ascribed the more transient sensations of pleasure, since, in that kind of delight and momentary cheerfulness, which is raised by the sight of a bright colour, the impression would, in great part, remain the same, if form were altered, or entirely withdrawn. But colour, thus devoid of form, is little connected with any definite idea; nor does it convey durable impressions.

In the useful and ornamental arts, form alone takes a strong and permanent hold on the imagination. The style of an edifice excites reasoning, and exercises a permanent influence; but the gaudeous colours which decorate it, produce no lasting impressions. Nature herself shews forth her most brilliant colours in sudden and transient gleams of light. From the largest to the smallest of her scale, that kind of beauty which is derived from form is alone permanent. The same principle is shewn, by a comparison of the successive and durable emotions, communicated by the expressions of the countenance, with the momentary delight evinced at the sight of a flower. It is form, much more than colour, which constitutes the expression of a countenance, and which, consequently, instils into the minds of others emotions of sympathy. This powerful instrument for exciting the feelings would lose all its energy with its Form, very little with its Colour: whereas, the gay flower, which pleases but for a time, and awakens but one kind of feeling, may lose the delicacy of its form, and yet preserve a great portion of its influence on the imagination.

One of the most interesting particulars connected with form, is, that it marks every extension of the object to which it belongs: and this circumstance, so essential to our knowledge of bodies having depth, as well as height and width, involves all those considerations which constitute Perspective.

The extension of objects, in a direction at right angles to that in which they are seen—that is to say, in a plane perpendicular to the visual ray—admits of no deviation from their visible form in the representation of them. Every point connected with the science of perspective is involved in those forms which advance, or retire, with various degrees of progression.

The form of objects becomes manifest to vision: firstly, by the opposition of a different medium, which marks their external boundary: secondly, by those changes in the direction of their surface which do not extend to the limits of the object, but being too sudden and violent for the eye to follow, present projecting outlines upon the body itself: thirdly, by the variations of light and shade, caused by these changes in the direction of the surface: fourthly, by the shadows projected by foreign bodies; projected shadows being (as has been justly observed by Mr. Harding) very instrumental in shewing forth the forms of the surfaces on which they are cast: fifthly, by the lines and accidental marks of all kinds, the apparent direction of which, is always more or less connected with that of the surface on which they are traced.

ON THE REFLEXION OF LIGHT,

CONSIDERED AS THE MEANS BY WHICH OBJECTS BECOME VISIBLE.

Reflexion, which expression generally implies reflexion of light, is the throwing off, in greater or less abundance, from the surface of bodies, of the light which falls upon them; but as the effects of the process, to which light is thus submitted, are very conspicuous, whereas the process itself, namely, the advance and the return of light, is unperceived, the term *reflexion* usually implies the effect rather than the process by which it is produced.

It may be said that all bodies possess the property of reflexion, in a greater or less degree, since the most transparent are not traversed by all the light which falls upon them, and none absorb it so completely, that no portion of rays is thrown back.

With the exception of certain phenomena of rare occurrence, produced by refraction, it is by the reflexion of light, diversely modified, that all nature, from her rudest and most permanent works to her lightest and most transitory effects, becomes visible. At the same time that light is reflected from the surfaces of bodies, its nature becomes more or less modified; but these changes belong properly to *colour*.

Under *reflexion*, I propose to examine those effects which depend rather upon the strength, quality, and direction of the light, with respect to the surfaces it falls upon, than upon its decomposition by them.

The surfaces of bodies are classed, with respect to the mode in which they reflect light, into rough and polished surfaces. If light be considered in its most attenuated form—that is to say, in distinct rays—it may be said that rough, as well as smooth surfaces, reflect each single ray in an angle equal to that of incidence; but polished surfaces only, throw off a *mass* of rays in the same form and relative direction as that in which it falls upon them, causing the reflexion of a figure to present the same form as the figure itself.

The reflexion which takes place on polished surfaces, reproducing both the form and colour of the neighbouring objects, may be called *definite* reflexion, to distinguish it from that which takes place on unpolished surfaces, where only a slight modification of colour is caused by the proximity of a foreign object, without any trace of form; and which may, therefore, be called *indefinite* reflexion.

Definite reflexion supposes the colour of the reflecting surface to be subservient to that of foreign objects reflected there; and when the reflexion is perfect, the material appearance of the reflecting surface is null, and the images reflected there are all prevalent both as to form and colour. Artificial mirrors are perfect examples of definite reflexion.

On a rough surface, where rays from all parts are reflected promiscuously with those from the principal object opposed to it, the intensity of the reflexion is proportionate to the proximity and extent of that object, as it then intercepts a greater portion of foreign rays, which would interfere with its own. By the removal of the object to a greater distance, the reflexion or tint communicated by it to the opposed surface becomes proportionately diffused and indistinct; but, at the same time, it extends its influence over a larger area. This is the reverse of what takes place in the case of definite reflexion, where the reflected image diminishes in size with the remoteness of the object.

Indefinite reflexion may be made to produce a tolerably distinct image, by excluding all foreign rays of light from a surface illuminated by a very small opening in a shutter. An inverted and faintly coloured image of the objects without will appear on the surface exposed to the light from the opening; and this, because the rays from every object being concentrated in the small aperture, strike upon the part of the opposed surface, exactly corresponding to the direction in which they arrive, and do not interfere with the image produced by any of the adjoining rays, as is the case when, with a large opening, the rays from every point spread their influence indiscriminately over the whole surface.

The influence of a neighbouring object is most apparent on a white or colourless surface, and it gradually becomes less apparent, as this surface has a deeper colour. But coloured surfaces reflect with greater purity colours similar to their own, than those which are of an opposite nature. Two warm colours, in juxtaposition, appear to increase the glow; the blue gains brilliancy by the opposition of a blue surface, exposed to a greater degree of light; the red by that of the red, etc. A reflexion thrown upon a differently coloured ground inclines to the same result as where the two colours are mechanically mixed. The yellow reflexion produces an orange tint on a red ground, and a green tint on a blue one; but these tints are far less perfect than those which result from the mechanical mixture of the two colours.

Reflected lights are the more apparent, as the body which produces them is more strongly illuminated, and the surface which reflects them is less so. This is shewn by the camera oscura, where the reflecting surface is a white sheet of paper, placed in the darkest situation possible, and where the reflected objects are visible in proportion as they are more illuminated. The superiority of white surfaces over all others, for receiving reflected images, is shewn by the same experiment.

Let us examine the principle of *indefinite* reflexion.

Rough surfaces present a great number of planes, or facets, at different angles with respect to each other, and reflect, in one single direction only, portions of light equal in extent to each individual plane, of which the rough surface is composed; and as these planes are disposed at various angles, the light is thrown off by them in almost all directions. Hence it is, that light, reflected by rough surfaces, has a diffused and undefined appearance, and, consequently, conveys no image to the eye. It appears, however, that even rough surfaces throw off rather more light in a direction corresponding with that of incidence, than in any other, which would seem to shew that the mean direction of the facets of which the surface is composed, corresponds with the plane of that surface. If flat bodies, of different degrees of roughness, be placed horizontally in a dark room, lighted only by a small opening or window, more light will be seen reflected on their surface by an observer placed opposite to the window, and viewing them at an angle corresponding to the incidence of the light, than in any other direction, and the quantity of light will be proportionate to the degree of roughness of the objects thus placed; the smoothest appearing very bright from the opposite direction to that in which the light falls upon them, and very little so in all others: whereas the roughest appear to throw off light in nearly the same quantity, from almost any point.

Another thing to be observed is, that surfaces smooth, without being highly polished, reflect objects most distinctly when their direction is oblique: for example, the surface of a slate, of a marble slab, or of a leather covering, although it may not be sufficiently polished to reflect the image of any object, under an obtuse angle of incidence and reflexion, reflects it with more or less distinctness where the surface alluded to is held in a very oblique direction with respect to the eye, so that the rays from the object form a very acute angle of incidence with the reflecting surface. The eye, then, catches those rays only, which are reflected by the summits of the projections which roughen the surface, the mean direction of which corresponds, more nearly than that of their sides, with the general plane of the surface. The pavement of a church will reflect more light to the observer from a window situated low, than from one above it, although the quantity admitted by either into the interior of the building be the same.

ON COLOUR.

AS ONE OF THE CHARACTERISTICS OF BODIES.

Objects owe their colour to the decomposition of light, either reflected from their surface, or transmitted through them. With opaque bodies, it is the light reflected which impresses us with their colour: with transparent bodies, it is the transmitted light, or the light which has traversed their substance.

Almost all bodies differ with respect to the quantity, as well as to the nature, of the light absorbed and reflected by them. Some reflect, and others absorb, nearly all the light which they receive, indiscriminately; that is, without causing any separation in its constituent parts. Others divide the light, retain certain portions, and reject others. Hence the variety of colours presented by objects.

In order that this may be generally understood, it may be well to refer to the composition of the ray of light. Sir Isaac Newton first discovered that it was divisible into seven diversely coloured rays; red, orange, yellow, green, blue, indigo, and violet; which the later discoveries of Sir David Brewster have reduced to three only, red, yellow, and blue.

Opaque bodies absorb a portion of these rays, and reflect or re-radiate the remaining portion, which last only transmits to the eye the colour of that body.* The rays thus reflected are complementary to those retained and absorbed. If the body appear red, the yellow and blue colours are absorbed, and the red emitted forth: if it appear yellow, the blue and red are absorbed, and the yellow emitted; and an analogous process produces the blue colour. If the body be orange, green, or of any other mixed colour, it is produced by the total absorption of those colours which do not enter into the composition of that which is apparent in the body, and by the partial absorption of those which would be an excess if reflected altogether. Thus, if the object appear green, but imperfectly so, not only the red light is absorbed by it, but also a certain amount of the blue and yellow, in portions differing according to the tendency of the green towards the one or the other of those two colours. Black is produced by the total absorption of all the coloured rays; white by their total reflexion: a simple but satisfactory demonstration, that the aggregate and complete ray of light is of a white colour.

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* The late Professor Daniell seems to have employed the terms *re-radiation* and *secondary radiation* synonymously with reflexion. A distinction might easily be drawn between these two terms, by employing the term re-radiation to designate the throwing off of light after a decomposition has taken place, or a part of it has been absorbed, and the term reflexion when no decomposition has taken place, but the whole of the light has been thrown off unaltered, as is the case with mirrors, or with white substances.

Bodies appear coloured by transmitted light when they are viewed on the opposite side to that on which the light strikes, as is the case with a fluid in a jar or bottle held up to the window, with transparent curtains, with coloured glass, and with the leaves of trees seen underneath. The colour thus shewn is, in general, deeper than that of which reflected light is the agent.

The colours apparent on those bodies which the light has traversed, are derived from the same causes as those which characterize the surface of opaque bodies. The colours which have been retained by the transparent media traversed by light, are complementary to those which are transmitted. Those bodies or fluids which are perfectly colourless alone transmit, unaltered, the light which has traversed them.

The process by which colour is elicited in bodies, both opaque and transparent, being once understood, little importance seems to attach itself to the question, whether or not colour is inherent in those bodies? The subject, however, derives some interest from the opinion of Sir Isaac Newton, cited by Sir David Brewster and others, that colour is not a property inherent in bodies. The question appears to me to be chiefly one of terms. If by the properties of a body we understand those peculiarities which are unaffected by external agencies, which resist the influence of every surrounding medium, and remain permanently the same, the colour of bodies, not fulfilling these conditions, could not be considered as a property. But, upon this ground, might it not be questioned, whether other conditions of bodies, such as their transparency or their solidity, which are likewise subjected to external influences, may be fairly termed properties? Throughout all nature, examples are to be found of the consistency of bodies giving way to external influences. The most hard and impervious yield to the effects of heat, but resume their former condition when this agent is removed. Other substances, such as those containing albumen, are, on the contrary, hardened by heat, and afterwards maintain that condition unaffected by temperature. The remarkable changes to which water is subject are dependent on the same invisible influence. Other matters coagulate by the mere influence of the weather, and the slightest of foreign impulses will cause certain transparent fluids to concrete, or to crystallize. The decided changes which are caused in the structure or the composition of metallic bodies by galvanism, or by exposure to air and water, might further be adduced, with many other examples to the same effect. Independency of all foreign influences cannot, therefore, be considered as a true test of that which constitutes the property of a body, or many of the conditions now held to be properties must cease to be considered so.

The conditions upon which bodies may be said to claim colour as a property, are similar to those of their other attributes, excepting that they are reversed: instead of being acted upon by foreign agencies, they act themselves upon a subtle and indefinable matter. The fact, that solid homogeneous bodies, when cut open, or broken to pieces, present, on every surface thus exposed, colours very analogous, if not perfectly similar, may be deduced as a proof that colour is intimately connected with the texture, or constituent nature of bodies. If the substance be of a compound character, as granite or other minerals, the variations of colour correspond exactly with those of the substance; and when the newly exposed surface of a body differs considerably from its external and older surface, it is, generally speaking, owing to some constitutional difference of the external layer; as when decomposition, or oxidation has taken place, or when the surface of an object is glazed, as in earthen-wares.

It is by inducing certain conditions of light by artificial means, and not by natural ones, that the inherent colour of bodies may be made to appear different to what it really is. If a coloured body be lighted only by one of the homogeneous rays of which the solar light is composed, that body will lose its colour and become black, if the ray to which it is exposed be of a complimentary and not of a corresponding colour. For instance, as Sir Isaac Newton discovered, a red surface will appear black, if lighted separately, either by the yellow or by the blue ray; and this is from the want of that integral and undivided light which emanates from all usual sources, both natural and artificial, endowed with the property necessary for shewing forth every colour possessed by objects. When any extraordinary colour is presented in the effects of nature, the various objects, although they be partially tinged by the light peculiar to this effect, preserve, nevertheless, their characteristic and distinctive colours so far, that they are at once recognised from each other. The light of the moon, the light of a fire, the light of a lamp, and indeed most artificial lights which are not made up with the intention of subverting the appearances of nature, however different and diversified their influence on the appearance of objects, leave, nevertheless, the constitutional colour of each discernible. Scarcely does a body emerge from complete darkness but its colour becomes apparent, and that colour remains the same to whatever degree of light the object may be exposed. It must, therefore, be recognised that the principles on which the colour of objects depends, are in a great measure inaccessible to the agencies by which they are usually surrounded, and are susceptible of being destroyed, or impaired to any considerable extent, by such circumstances only as science or artificial means can cause to operate upon them.

As far as art is concerned, it is important that objects should be considered to have a colour of their own, in order that this colour, permanent and inherent in the substance, may be more readily distinguishable from those transient and superficial tints which result from various effects of light. The term local colour will be used to express the former, and reflected tints to designate the latter.

MOUNTAINS.

General Remarks.—A mountain, considered geometrically, is a deviation of the earth's surface from the horizontal direction to one more or less inclined. A certain extent of the deviating surface seems also to be implied, since a slope, when little protracted, becomes a hill, a hillock, or a mound; or is comprised in the more general term, eminence. But definition is less precise with respect to the degree of inclination, since a slope, though it be very gradual, does not the less form part of a mountain, if it be continued to any considerable extent.

As to the question, whether rapidity of slope has any connexion with the elevation of mountains in general? examples differ so widely, that it would be difficult to establish any general rule. Perhaps, if a distinction were drawn between the primitive forms of eminences and those which they have since acquired, from the erosion of the sea and torrents, or other casualties, it would be found that, upon the whole, steep slopes and abrupt angles are more common in the loftier than in the inferior classes of elevations; as may be shewn by a general comparison of the hilly and mountainous districts both of England and of the Continent. The inferior undulations of this country present nowhere considerable slopes equal in steepness to those exhibited by the mountains of Wales or Scotland; nor does any chain in Europe, unless it be perhaps the Pyrenees, afford examples of sharp ridges and pointed summits to be compared with those of the Alps. On the other hand, the mountains of Norway afford examples of an abrupt and precipitous form of outline, combined with a less degree of elevation: their sides often present a surface nearly vertical from top to bottom. Some of the valleys of the Jura are also enclosed by abrupt rocks, although the general outline of the chain rises and falls with a gradual curve. Mount Etna, elevated more than 10,000 feet above the sea, rises with a very gradual slope, progressively increasing towards the summit, and is one of the many examples to be met with, where the degree of inclination has more connexion with the character and structure of a mountain, than with its elevation.

Two circumstances characterize eminences generally, and render them, even in their simplest forms, something more than a change of surface from one direction to another. I allude to gravitation, and to the progressive increase of cold, with increasing distances from the earth's surface. The existence of large and ponderous masses many thousand feet above the level to which matter naturally sinks, seems to be a violation of the law of gravity; and it is to this apparent resistance of matter to one of the most general and evident laws to which it is subjected, that are chiefly to be ascribed the impressions of awe and amazement with which these bulwarks of nature are viewed. Their summits, unsupported, would be precipitated into the abyss below. Hence the danger with which the least accessible parts of mountains are encompassed, and the mysterious delight which associates itself to the perception of it. Thus it is that the law by which bodies fall to the earth, gives to elevation a peculiar character; to mountains, which mark that elevation, a new feature; and a poetical tendency to the impressions which their appearance excites.

The next point referred to, is the influence which the progressive change of temperature from the lower to the upper regions of the air has on the appearance of hills and mountains.

On eminences of the lower order, this influence may be already observed in the vegetation; a visible change in this respect being generally produced by an elevation of from 1000 to 1500 feet. This change of temperature is characterized on the loftier mountains by the phenomena of snow and ice abounding in the height of summer, with many transitions to mark the ascent to this abode of eternal winter. Hence the rills, the waterfalls, and also the avalanches, with their accompanying scenes of devastation. These and many other incidents result from the progressive change of climate which marks each stage of elevation above the earth's surface.

Another characteristic of hills and mountains is, that they exhibit to our view the internal structure of the globe. Where there are no mountains, the strata of the earth are hidden from our sight, decked with the verdant mantle of vegetation; but they have been raised, and exhibit, in consequence, a new class of phenomena. The operations of time and of the atmosphere, have produced still further changes. These elements of destruction generally assume in the highlands a more active character: in mountains, the rains are heavier and more tempestuous than on the plains; the torrents swell more rapidly, and rush with greater violence, scooping out their slopes into ravines, glens, and valleys, and greatly modifying their character and appearance.

Next to the differences of climate due to unequal latitudes, mountains have the greatest share in giving to a country its distinctive character. In the first place, the general outline of a chain, or the leading forms of a group, give marked features to a country. The influence of mountains next shews itself on the vegetation, as well as on objects of industry; but in this respect mountains produce differences between the various parts of the same country, more frequently perhaps than they increase national distinctions; for the limits of states correspond only occasionally, and not always, with the great natural boundaries formed by the chains and ridges of mountains. As these extend from one country into another, they communicate similar customs to a portion of either, uniting various and dissimilar nations in the same social habits. On the other hand, notwithstanding these marked differences in the scenery of countries, the origin of which may be traced entirely to mountains, great resemblances may occasionally, or rather frequently, be traced in the details and component parts of different groups of mountains. A form will now and then strike the eye, closely resembling another in a distant part; and in the details of the valleys, such as crags, defiles, and cataracts, scenes very similar will appear in countries most remote.

Their Influence in the Landscape.—With respect to the picturesque influence of a mountain in a landscape, it may be considered under two points —the undulations of the soil to which it gives rise, and the screen or boundary with which it encompasses the scene. From these various undulations of the soil results that diversity of perspective planes which gives expression and character to a scene. The surface of the country is presented to the eye under various degrees of developement, from the rapid foreshortening of objects, to the bird's-eye view of them, which gives to ascending and descending slopes their peculiar and opposite characters. On declivities, the trees and other objects conceal more of each other than on the plain seen beyond; whereas, on acclivities, or slopes rising from the observer, they often appear almost at full length, the tops of the foremost concealing only the base of those which succeed at certain intervals. They thus appear to ascend in stages before the observer, instead of vanishing rapidly from him.

Considered as boundaries or screens, the influence of mountains is equally important. An outline varied and broken with every possible diversity of shape, is substituted to the uniform dead line of which the horizon of the sea affords an example, and by admitting the sight in parts to the most distant recesses of the scene, and excluding it in others more or less, the form and distribution of the predominant parts of the landscape become infinitely varied.

It is the outline of a mountain which constitutes its most important feature, and on which, consequently, its interest as an object chiefly depends. The outline or profile of a mountain is determined by that portion of its surface which is parallel to the line of vision; and when, as is often the case, a more distant part of the mountain advances so far as nearly to meet this line, a lateral change in the position of the observer will bring to his view this new portion of the mountain, which will now form the outline; and as certain portions of a mountain's surface generally project much more than others, it is from certain situations only, where these violent projections appear to form the outline, that the character of the mountain becomes most forcibly expressed. As the traveller again advances, these bold projections gradually sink beneath the mass of the mountain, and its form becomes more tame and insignificant; at length other forms appear, and assume an aspect more and more bold, until he has reached the point where their outline forms the greatest projection. Here, though the features of the mountain be changed to a degree which may sometimes almost prevent their being recognized, they are again stamped with a decided and picturesque character. It may therefore be well to consider, in drawing the outline of a mountain, that it is not always formed by a portion of its surface equally distant from the observer, but by the more prominent parts, which successively advance so far as to meet the sky from different parts of the mountain. By proceeding according to this principle, rotundity and depth are given to these important objects in a landscape scene.

Forms of Mountains.—Picturesqueness is a point chiefly aimed at in tracing the forms of mountains: the picturesque, unlike the romantic, is a quality which may be applied to a single outline; whereas a combination of outlines, or an entire scene, can alone suggest the idea of that which is romantic. Picturesqueness in the forms of mountains may be said to flow either from elegance or from boldness, or from the combinations of both. Gilpin has tastefully drawn a distinction between elegant and inelegant forms of mountains. The latter

Fig 1

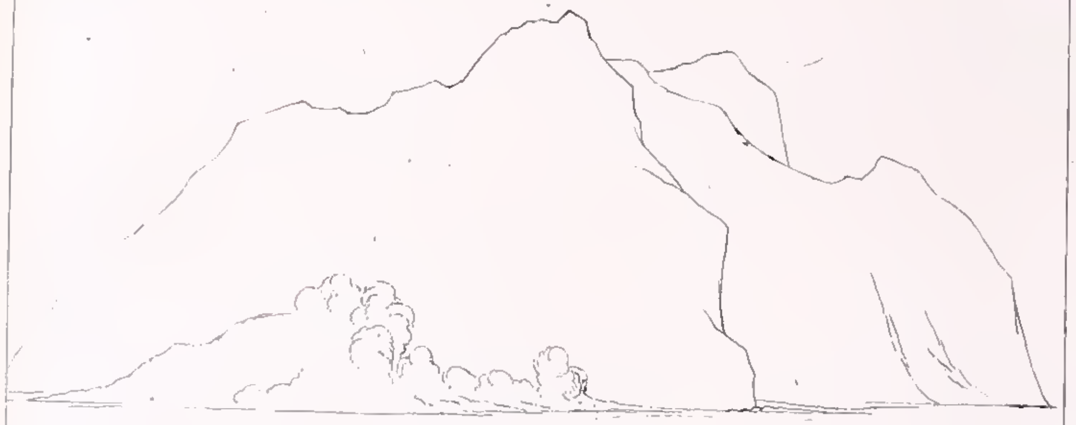


Fig 2.

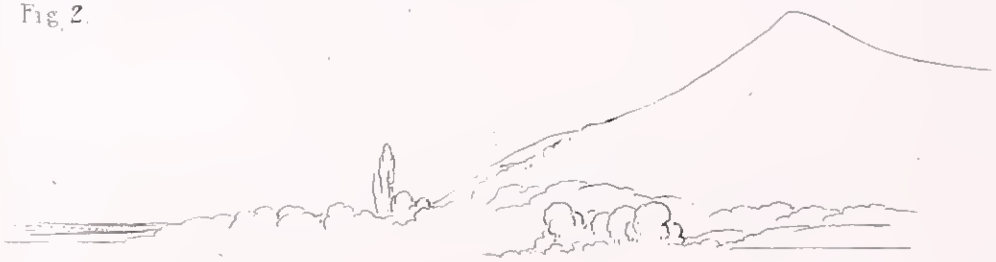
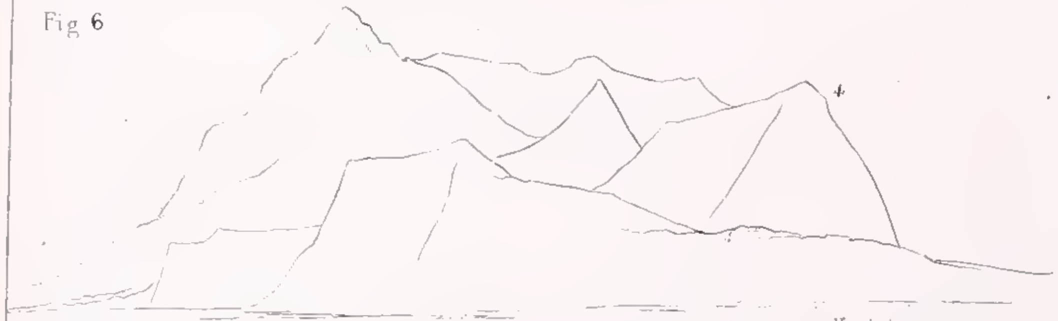
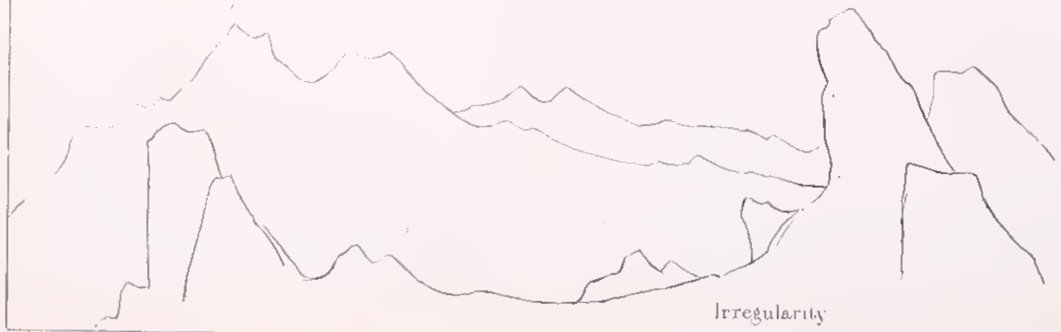


Fig 6



Variety

Fig. 5



Irregularity

Fig. 7

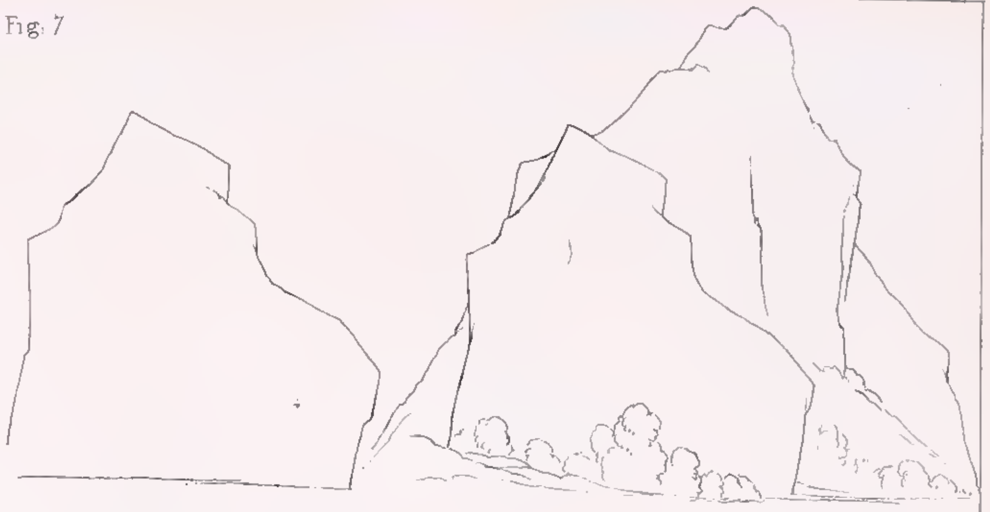


Fig 3

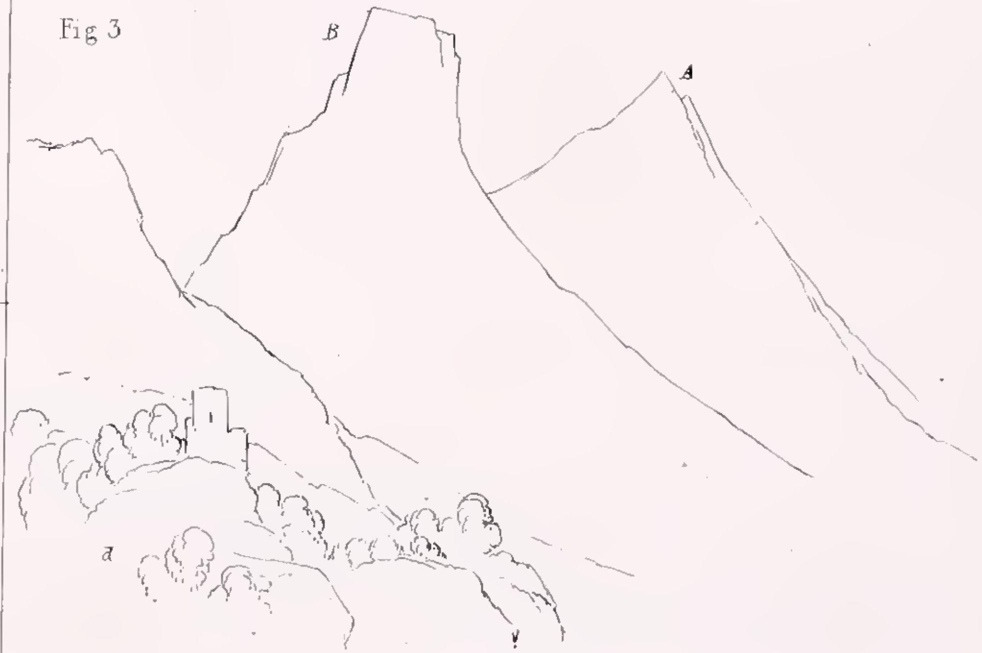
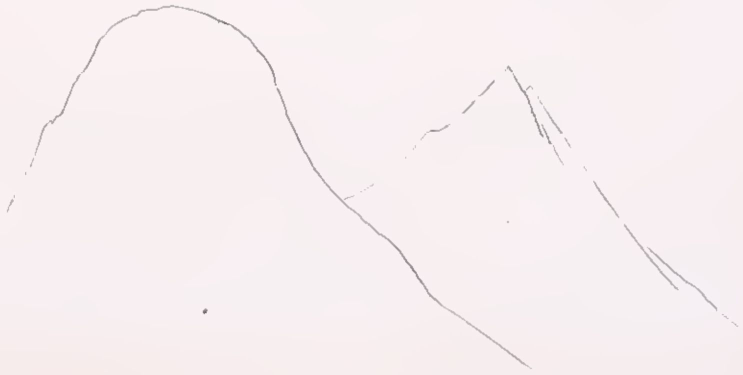


Fig 4



are more easily defined than the former. Taste will agree in marking, as unpicturesque, a lump or rounded shape, a parallelogram, or a form resembling that of any mean object of art, or of any natural object of a different class; but were it possible for tastes to agree in determining that which is most picturesque and beautiful, there would be an end to diversity; the perfection of picturesqueness would be cast from one model, all deviation from which would offend. By excluding, however, from our view those forms which are unpicturesque, those which remain must necessarily possess a general character of picturesqueness, not limited to one particular type, but constantly varying—whether it depend upon unity of form, whether upon the combinations of several forms.

Any form resulting from an unbroken succession of curves or of straight lines may, in the first place, be marked as objectionable. A curve must be continued from the base to the summit, or, if broken into parts, it must be so by the intermingling of straight lines and angles. Picturesqueness, in the forms of mountains, results from various and indefinable combinations of straight lines and curves [see plate, fig. 1]. An outline may, however, become successively convex and concave [see fig. 2]. A corresponding inclination of the opposite parts of a mountain is bad, unless the coincidence be carried throughout, as in the pyramid: the same objection applies to corresponding projections and notches: they should alternate irregularly. Vertical lines in mountains should either begin from the summit, or from a considerable distance below it: a short slope on the summit of a mountain, preceding a high precipice, has a bad effect: the vertical line may be sometimes seen to extend downwards till it meets the plain at right angles, but the angle is more frequently filled up by an inclined slope, resulting from the shivered fragments fallen from the mountain.

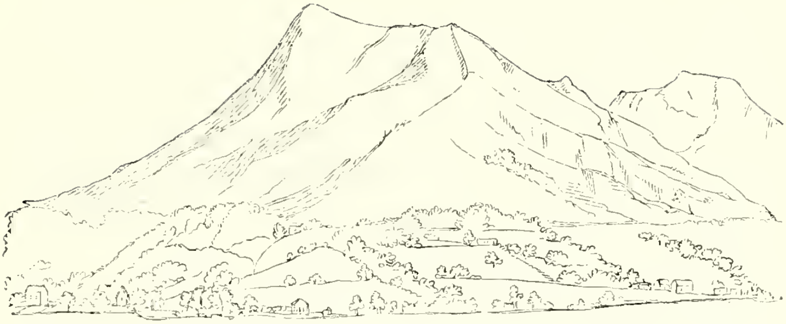
The elegance of a mountain seems to be considerably influenced by the apparent balance of its parts: the eye is shocked when the head of a mountain is preponderant, as compared with its base. The considerations with respect to a mountain's balance should even extend to the materials composing it, bold and abrupt forms being the natural indications of a hard and massive structure. It may be owing to this principle that a mountain, whose side descends abruptly to the plain, is more picturesque than one whose base is turned off with a sudden curve. A bold outline suggests a hard and firm material, consequently greater capability of support; but a curve produced by fallen fragments takes away from this idea. In general, mountains which rise abruptly from a plain, or level valley, have struck me as possessing more grandeur and dignity than those which ascend in slopes from an indeterminate level. A long gentle slope frequently terminates in an abrupt fall, resulting probably from the wearing off of the point by water, or other causes.

A mountain rising with a gradual curve from the base to the summit, should terminate either in a sharp or in an angular form [see A and B, fig. 3]. It is displeasing when rounded off, as in fig. 4, and this may perhaps again be traced to the necessity of balance. A line like the curve, becoming progressively steeper, implies increasing adhesiveness and solidity. Why, then, should the lines not be continued until they meet at an acute angle? why compressed and blunted off like a mouldering hillock? But a square summit [B, fig. 3] shews the primitive form of the rock, firm and unaltered by contingencies of any kind, and, like the peak, forms a fit termination to curved lines gradually approaching to the vertical.

The acuminated summit [A, same fig.] often presents itself in nature: it unites simplicity with elegance, but the point should terminate a form proportionately slender; a sharp apex planted on the shoulders of a bulky, rounded mass, is unpicturesque; but forms of this kind seldom occur in nature.

The forms which Gilpin condemns are those which are mathematically regular, whimsically grotesque, or those which present a continuity of line without a break, whether they be straight, concave, or convex. The latter yields a very scanty share of picturesque beauty: it produces neither boldness nor elegance, and its use is only in the contrasts which it affords.

The straight line appears frequently in the tabular forms of eminences and mountains of an inferior order: its picturesqueness depends principally upon the manner in which it terminates: it is unpicturesque when its termination is cut off by other slopes, or when it ends in a curve; but it may have a good effect when terminating in an abrupt angle. The concave line is less frequent than the straight line. Examples are to be met with where it is elegant, and where it is the reverse. Mount Rigi, as seen from Lucerne, consists of two curved lines; one, rising in a long continuous sweep, forms the northern slope of the mountain; the other, somewhat saddle-shaped, forms the ridge.



Generally speaking, simplicity results from lines little interrupted and broken. The danger of monotony grows rather out of the repetition of jagged forms than from the too great extension of lines simple in their nature: [see figs. 5 and 6], irregularity, and variety. The most prevailing feature in the forms of inferior mountains appears to be a succession of short straight lines, forming very obtuse angles where they meet; and though the general outline of a mountain may appear curved or flowing, any portion of the same viewed in detail will appear to consist in straight bits of various lengths, so obtusely united together as scarcely to interfere with the apparent curve of the whole.

The irregularities in the slope of a mountain, should be proportionate to the projections and indentations of its summit. If the latter be fretted with minute and numerous peaks, the slope leading to it will naturally be gapped and irregular;

but if the summit has but one peak, or present some other bold and simple form, the mountain itself will rise in a plain uniform outline.

The cone shape is sometimes associated with the mound or hillock, seldom with the mountain, unless it bear a decidedly volcanic character; it is less picturesque than the pyramid, which occurs on a very large scale. The angular corner is here admirably matched to boldness and simplicity. The Niesen on the Lake of Thun is a noble illustration of this form. There are two others on the north of the Gulf of Lepanto; they rise perfectly detached from the plain of Missolonghi; their base appears to be cut off by the sea, although they are probably a considerable distance from it.

The analogy above alluded to between mountains and other objects, is not unpleasing when in character; but it becomes insufferable when out of place, and when it has a degrading tendency. We admire the velvet softness of distant wooded eminences—the angular sharpness of the Alpine peaks and obelisks: this is in the usual course of nature. The resemblance to noble objects of art is generally to be met with in such forms as are themselves grand and colossal. A rock resembling a massive bastion crowns a circular mountain near Aussee, in the Salzkammergut. The resemblance is striking, and the thing resembled being a fine object, and quite in its place, has a good effect. It is not so with the rocks of the Traunstein, and other mountains which rise abruptly from the lake of Gmunden; such is the whimsical grotesqueness of their outline, that at first sight one does not fancy it to belong to rocks of the real height and magnitude which these possess, and unless these mountains are viewed from different points, and their elevation better appreciated, one is apt to go away with the impression, that this extraordinary display of form is but an imitation of grandeur. The summit of the Hoch Schwab, seen from the valley of Weichselboden in Styria, presents naked rocks cut into numerous folds somewhat resembling those of drapery. The astonished imagination almost fancies a bad imitation of a mountain cut in board, and with the least degree of sensitiveness in point of picturesque purity, is alarmed at the resemblance. Some of the Alpine ridges rearing in succession, point above point, seem to have tented summits, and thus recall images which the tasteful lover of the beautiful hastens to banish from his mind.

If the single outline of a mountain admits of considerable variety, a combination of outlines multiplies this variety to an unlimited extent. The introduction of a second line mitigates the first, and if it be extravagantly bold, makes it tolerable by its softening and, as it were, conciliatory influence, in the same manner as in combined melody, a discordant note is brought to harmony by the complacency of other notes less harsh, and less remote from the tone of the piece. A rock which, as a single outline, appears forced and unnatural, assumes a character of truth when another line is introduced a degree less bold than itself [fig. 7]; but the line superadded must not differ so excessively from the first as to lose its congeniality. Its office is to aid the former to bear a character so marked and extraordinary, that it cannot be borne unassisted; or, to establish a connecting link between two classes of forms, which cannot tolerate each other without the intercession of a third having some tie with both. On the other hand, an outline insipidly tame, will gain expression and ease by the addition of a bolder one.

The art of thus conciliating forms by their mutual influence, depends chiefly on the introduction of each kind in its true place. A sharp ridge or angular summit may be associated with other hard outlines of a very different character, but not with any softened or blunted form: these can only be brought in by progressive gradation, at a distance, or under different circumstances, as in gentle hills near the foot of bold mountains [see D, fig. 3].

By means of these combinations, the eye may be flattered into consent at almost any union of forms. A line or two adroitly put in will conceal the unsightliness of the most awkward and uncouth outline as seen by itself. In rocks, a slight mark will sometimes be sufficient to point out the continuity of any form in a direction more analogous to its first course, than is suggested by the boundary outline of the whole surface; thus considerably mitigating the crudity of the effect.

Great picturesqueness seems to arise from the forms of two mountains, very intimately combined, so as to have the appearance of one. An instance of this struck me in the valley of Pinzgau. A somewhat dome-shaped mountain, of inconsiderable size, appearing to rest upon an eminence, on one side terminating abruptly, and on the other, rising in one oblique line, forming a bold section of the mountain above. Where two mountains or a group are so combined, that the mind is in doubt whether it be one mountain or more, the imagination seems to delight in the uncertainty, and takes advantage of the pliancy of the material, to alter, and re-alter, and at last comes to the conclusion the most agreeable to itself with respect to the character of the image before it.

Immense assistance is to be derived in the disengaging of a mountain of its heaviness, or of the uniformity of its outline, by giving to different parts unequal degrees of strength. A single mountain will appear divided into two or several parts, if the outline of each be made successively fainter as it becomes more distant; and if to the increasing faintness of outline be added the influence of mist, of an illumined atmosphere, or of any other softening principle, the change will be greatly increased. Lights and shadows effectively introduced, afford still further means of shewing forth hidden beauties.

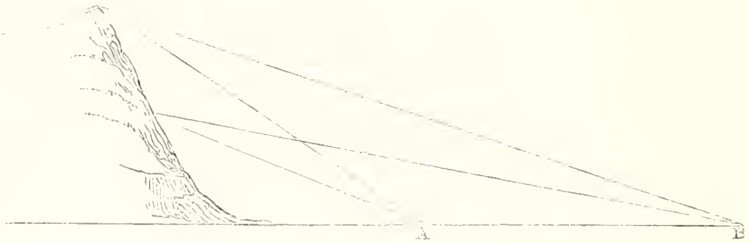
Elevation.—In pictures from nature, elevated mountains become interesting, because we know them to be the exact representation of extraordinary objects. But in compositions where there is no difficulty whatever in exceeding the bounds of nature with respect to the magnitude and boldness of mountains, their claims to admiration must rest on other merits.

As far as imitation goes, no more is required than to fill up correctly the portion of the canvass where the mountain has been intended to be placed, the influence of distance being duly accounted for. The knowledge of the height of a mountain in feet, or in any other such measure, is of very little assistance. The point marked out for the base of the mountain, more or less near to the bottom of the picture, according to the obliquity of its vanishing plane, fixes its distance from the observer; and the relative proportion of the objects on the mountain's surface, as well as the effect which it produces in the composition, will then prove sufficient, with a little experience, to find the point to which the summit may be carried, without exceeding the natural limits of proportion, or without sacrificing grandeur to probabilities.

The artist judges of the elevation of mountains, and of their relative distances, in a general and comprehensive manner. He values the influence of the latter on the former, and determining approximately the proportions of the neighbouring eminences by the trees and buildings with which they are decorated, he proceeds stage by stage to those more remote. When all minor objects of comparison have vanished, his chief guide in measuring the most distant forms is comparison with the nearer ones, to whose scale they must be duly proportioned; allowance being made for the intervals of space, as well as for the grossness or transparency of the atmosphere. Elevation being thus modified by distance, the ridge of a chain just appears above the swelling hills by which it is preceded; whilst higher, though further still, appear the snowy summits of a central group.

Illusions with respect to the proportions of mountains sometimes arise from the resemblance which some of their forms, on an extensive scale, bear to the diminutive projections of an inferior class of eminences. Hence the mistakes to which visitors to the Alps and other lofty mountains are frequently exposed; more especially when a high degree of transparency of the atmosphere decidedly favours illusions of distance.

The elevation of mountains varies in appearance with the situation of the observer. A lofty mountain sometimes appears less elevated when he is stationed at its foot, than when he is situated at a greater distance; whereas this does not strike you in an inferior mountain. This may be ascribed to the effects of foreshortening, whose influence at a given distance from the base is more apparent on the superior than on the inferior portion of the same mountain, or on a lofty mountain than on a low one. The subjoined diagram shews the relative degree of this foreshortening from two different points.



When a low mountain is situated between the observer and a loftier one, there is a relative diminution of the former and increase of the latter, as the observer retires to a more distant situation. Thus the more advanced ridges of the Alps appear, from a station comparatively near, to cover nearly the whole of the more elevated chain behind them; whereas from the Jura, or any other very distant point, they shrink into insignificance before the central Alps, and seem lost in the irregularities of their base, the same degree of direct removal causing invariably a greater perspective diminution on near objects than on distant ones. In the same manner, a lofty tower appears to rise the more above the surrounding houses, as the observer withdraws to a more distant point.

The elevation of the observer generally adds to the apparent height of a mountain, as his eye then embraces the entire slope of the mountain, which from below appears partly concealed or foreshortened. On the other hand, a gradual rise towards the foot of a mountain has generally the effect of taking off from its apparent elevation. However, the interposition of eminences, and more particularly of clouds, leaving the summit of a lofty mountain to be alone perceived, has sometimes a contrary effect; its height is more striking when the imagination has to fill up the space beneath, than when the whole of the mountain is visible. The apparent altitude of a mountain seems to be much influenced by the association of ideas to which peculiar effects give rise. A snowy peak appearing through an opening in the clouds, and reflecting with dim transparency the azure of the sky, seems to derive at once elevation and grandeur, from the association of its bright aërial attendants of mist and cloud.

Moonlight has the effect of lowering the apparent height of mountains in a remarkable manner, causing those forms which are bold and imposing by daylight, to appear like softened and diminished shadows. This is the more remarkable, as the dim perception of a mountain through a mist generally adds to its apparent height. This opposite result cannot therefore be traced to the absence of details, which, by clear daylight, are seen to fill up the periphery of the mountain, and which disappear in the gloom of night. The cause may be the same as that which produces the diminutive appearance of shadows and of dark objects, whatever be their nature.

Details.—The objects which fill up or embellish the slopes of a mountain differ more or less according to its elevation, wildness, and situation, from those which form the ornaments of milder and more level scenery. Next to rocks, which form the most characteristic appendages of mountains, and which will be described under a separate head, forests chiefly claim attention on their slopes, since woods generally abound on steep declivities, where agricultural labours would not be repaid. It may be remarked, that whilst groves of the loftiest timber do not appear heavy on the brow of the smallest eminence, but are equally adapted to eminences of every scale, shrubs and underwood are but ill suited to the colossal features of loftier mountains; their disproportion is too great to add to elevation by contrast, and they appear minute and insignificant. The loftiest firs on an Alpine ridge harmonize with the magnitude of the neighbouring objects, and appear as a mark by which may be computed the depth of the precipice which they overhang.

Trees are generally of finer growth on hard granite, or calcareous rocks, than on those which are composed of slate and other soft or brittle substance; the gradual crumbling of the surface, and the slips which frequently occur where the adhesion of the strata is imperfect, do not allow time for the vegetation to acquire any degree of magnitude, before the soil on which it has taken root is carried away. Shrubs and underwood chiefly cover the loose and brittle slate on the slopes which border the Rhine below Bingen, whereas on the mountains of the Schwarzwald and Switzerland, the finest woods of beech and fir grow from a thin coating of vegetable earth on a foundation of rock. Full-grown trees are, indeed, often seen clinging to the bare surface of the rock, with their roots wedged into the crevices. An abrupt rock overhangs the old castle of Baden-Baden; out of one of its fissures grows a tree with a massive trunk; whilst the roots are seen to come out of a cleft three or four yards lower down. In the Höllenthal, in Styria, the naked trunks of trees may be seen in the crevices of a bluff rock: they do not project beyond its general surface, and resemble statues in their niches.

Tints.—Where there are mountains, the tints of distance are brought into bold contact with the sky, and produce contrasts which flat scenes never present. But it is when ranges of mountains recede avenue-like into a landscape, that the progressive prevalence of the light and aërial tints of distance may be traced from mountain to mountain in well-defined gradations. Peculiarities of colour, also, result from a marked and prevailing difference which exists between the vegetation of the mountains and that of the valleys. The pastures of the Alps assume a greyish tint in proportion to their elevation. A scanty and parched herbage is mingled with broken rocks on the weather-beaten ridges of the Appenines. Heaths abound on dry and barren slopes, and give them a brownish hue; whilst the effects of distance and intervening atmosphere on the various local tints multiply their shades in rich variety. "The yellow streams of light, the purple hues and misty azure of the mountains," says Gilpin, "are tints rarely permanent; but seem to be floating silky colours always in motion, always in harmony, and playing with a thousand changeable varieties into each other. . . . . The lines and shapes of mountains, features strongly marked, are easily caught and retained; but these meteor forms, this rich fluctuation of airy hues, offer such a profusion of variegated splendour, that they are continually illuding the eye with breaking into each other, and are lost as it endeavours to retain them."

The mountains of Attica and of the Peloponnesus, owe to their carpeting of heaths and flowering shrubs the richest crimson and purple hues. These tints impart a delicious softness to the distance, and appear, indeed, to extend their influence to the nearer parts of the scene. Between Epidaurus and Nauplia, a cloudy state of the atmosphere did not at all interfere with these glowing hues, which appear consequently to be owing chiefly to the warm tints of the vegetation, and partly, to those of the rocks and soil, both perhaps blended and heightened by mutual reflection.

In the valley leading to Mount Pentelicus, similar tints made their appearance during a mist, such as in more northern countries generally produces cold and raw tints.

Owing to the purity which generally prevails in the state of the atmosphere in mountainous regions, the tints which result from the various changes of the weather, as well as from the effects of light and shade at different periods of the day, are peculiarly deep and vivid. The sun as it rises in the morning, or declines towards the horizon, sometimes shines upon the summits of the Alps with extraordinary brilliancy; and the transition from the illuminated portion to the one in the shade, forms a direct line more or less marked and distinct, according to the distance of the mountain which projects the shadow from those which receive it. A beautiful transition of colours accompanies this effect.

From elevated situations, where the eye can reach far and wide, the red glow of sunset may be seen to extend along different mountains at a corresponding elevation, and its slow ascending motion, as the sun gradually descends, is an impressive sight. For effects of this kind on snow-

[illegible] Stone by G. Barnard

[illegible]

VIEW OF THE JUNG FRAU AND THE TWO EIGER

clad mountains, see "Glaciers." I will here only refer to the dark greyish tint, which snow itself will sometimes put on when in the shadow, and contrasted with a luminous sky. At an early hour in the morning the Yungfrau and the Eigers, seen from the environs of Interlaken, appear of a dark cold grey against the bright sky lighted up by the rising sun. Late in autumn, the northern slope of the Yungfrau is in the shade till near mid-day, appearing darkened when the sky is luminous behind.

For more special remarks on the tints derived from the atmosphere, see "Distance."

Remarks on some Chains of Mountains.—The Alps preserve, from the Mediterranean coast to the confines of Carinthia and Styria, a sharpness and boldness in the outline of their peaks and ridges peculiar to this chain. To the north, the mountains seem to have been more convulsed and rent than to the south, where they are more entire, having their sides less broken by precipices. "Granitic and calcareous mountains present differences which are easily traced in their general outline. The calcareous mountains have frequently on one of their sides a slope, more or less inclined; whereas the other is cut off abruptly, and forms either one huge wall or a succession of walls, separated by ledges or short slopes. In general these stages are not horizontal, but inclined in the length of the mountain, with an angle corresponding to its slope; and their base is frequently imbedded in heaps of minute fragments, successively detached from the superincumbent rock, and forming a steep escarpement at the base of the mountain. The granitic mountains are more entire, and present less difference in the outline of their opposite sides. They do not exhibit those sudden transitions from inclined planes to abrupt and lofty precipices; but, owing to a greater intermingling of both, the mountain acquires forms in most cases less characteristic, although upon the whole they are equally steep. The disintegration of the rock seems to take place in a very different manner: small fragments are not detached, as in the calcareous mountains, from the vertical walls; but the rock splits up almost indifferently in various parts of the mountain's surface. Large crevices in the granite, may be observed on the horizontal parts of the mountain, and on its summit. The quadrangular form prevails amongst these masses, and it is retained more or less after they have been precipitated to the foot of the mountain. The heaps of boulders piled one upon another in the valley of Gondo, form a remarkable example of this kind of ruin of the granitic mountain."[*]

The Appenines have a more spreading character than the Alps; their slopes are less abrupt, and they present in very few instances, summits which might vie in boldness with those of the Alps; their ramifications are separated by level and fruitful plains, which cause the groups to appear detached from each other, and present them to view at various distances.

The mountains on the east of the Peloponnesus are more contracted together; they do not appear, like the Appenines, at those intervals which give beauty with distance; nor do they present that decidedly romantic character which, in the Alps, compensates for the want of space; and their barrenness becomes the more offensive from its being brought close to view. Their summits, generally round, want that decided and menacing character which alone reconciles the eye to surfaces entirely denuded. Here and there, however, appear some bold and detached forms of mountains with a picturesque effect.

The mountains on the coast of Asia Minor, and the adjacent islands, resemble the Appenines on the western coast of Italy, but in appearance they are more parched. The highest of them have their surfaces broken up into a great many planes, diversely inclined, which has the effect of adding to their apparent altitude.

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[*] Remarks made by T. Twining, jun., in 1845.

The Fille-fields in Norway, though greatly inferior in elevation, bear a characteristic resemblance to the Alps. Their slopes are equally precipitous and lofty, and present the most picturesque variety of form; but the towering peaks which, in the Alps, look down as from a different region upon the inferior ridges forming the immediate limits of the valleys, are wanting.

The chains which border the Danube, whether in the part of its course above Vienna, whether in Servia or Wallachia, have no dubious claims to the title of mountains: they are bold, lofty, and without those rounded summits to which the eminences of the Rhine often owe the depreciating appellation of hills. The connexion between one of the ramifications of the Alps and the mountains of Bohemia, is interrupted only by the course of the Danube, whose gorges in this part are awfully wild; but the great width of the Danube between the Hungarian and Servian shores, renders the scenery here less stern and threatening, although the elevation of the mountains is scarcely inferior.

ROCKS.

Their Picturesque Character.—Rocks may be said to constitute the wildest portion of a landscape scene; their presence precluding most of those enlivening embellishments which are the result of human labour. Their characteristic crudity is however so often modified and softened by accidental combinations, that they lose a great deal of their native wildness: an uncultivated waste may appear more barren, a shagged weather-beaten forest more dreary, than the rock whose brow is o'ershadowed with verdant shrubs, and whose foot is bathed by the sparkling stream. The character of rocks, therefore, such as the artist would select, and such as Nature often offers to his choice, is in a high degree romantic.

The size and threatening forms of rocks, render them most fit objects for exciting impressions of awe and terror: they also dispose the mind, more readily than other parts of the landscape scene, to wild and fanciful reveries. Throughout the vegetable kingdom, the purpose which attaches itself to the particular appearance of every object which the eye there perceives, becomes a check to the wanderings of the imagination, and keeps it within certain bounds. But with respect to the fantastic and ever-varying forms of rocks, the observer receives and expects no immediate explanation; and his unbounded fancy construes each form in the manner the most suited to the disposition of his mind. The imagination is thus easily led to associate and confound together the works of nature and art; transforming pinnacles of rocks into turrets and battlements, ledges into terraces, and caves into porticoes. Blair introduces the wildness of rocks as a proof that irregularity is productive of the sublime: "A great mass of rocks thrown together by the hand of Nature with wildness and confusion, strike the mind with more grandeur than if they had been adjusted to one another with the most accurate symmetry."

Form and Disposition.—If we consider the form and disposition of rocks in a physical point of view, it may be observed that their surface, taken as a whole, generally approaches, more or less, to the perpendicular; such parts as are level, or nearly so, being covered with vegetation.*

On the other hand, the exterior masses fall from want of support when they project considerably beyond the vertical line; unless in some particular cases, when the hardness of the rock, or the disposition of the strata, causes the superior beds to overhang in an unusual degree.† The impending position of rocks sometimes results also from the support afforded by natural pillars, as in caverns, where the binding principle of the arch sometimes makes up for the want of solidity in the texture of the rock.

Generally speaking, the projections and cavities presented by the surface of rocks are angular and rugged; the effects of sudden and forced separation of the masses being quite as apparent as the more gradual influence of the weather. The edges of rocks are, however, a little blunted, or rounded off, on the sea coast, by the wear of the waves. But the softening of the edges, by the action of the sea, is less apparent than might be expected, on rocks of a firm texture, and is limited to the parts continually washed by the waves: the influence of the spray is slight, and, at a distance, limestone or granite appears to preserve a bold and angular outline down to the water.

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* *Exceptions.*—In some parts of Sweden, the bare surface of the granite presents itself, to a considerable extent, so perfectly on a level with the surface of the country, as to form at intervals a natural pavement to the road. On the Alpine passes, also, the rocks present sometimes a considerable extent of surface, nearly horizontal; the severity of the climate preventing their being covered with vegetation.

† This effect is most visible in cliffs either composed of chalk or clay. By the latter, not only ordinary clay is to be understood, but those varieties also which enter into the composition of the red sandstone, oolitic, liassic, and freshwater formations, and which, when exposed to the action of the waves, become rounded on all their projections, and are generally undermined to a considerable extent, so that the upper portions of these cliffs project considerably (in many cases) beyond the base.—C. Moxon.

The deep and confined channel of a torrent in the Salzburg Alps, called Seissenberger Klam, has been scooped by the water into sinuous and winding forms, with here and there projecting ridges and partitions, which cause the stream to deviate from its course in abrupt angles. The edges are rounded off more or less, and the rock is smooth, but not polished, where it has been worn by the water; but the great abundance of moisture causes the surface to reflect light as a mirror, to a certain extent. The colour of the rock is of a whitish grey, with very little mixture of brown. The total absence of vegetation in the more sheltered parts, and its sudden appearance where light and air are admitted, form a point connected with the growth of plants, which it may be useful for artists to attend to.

The influence of the weather shews itself on inland rocks of a loose texture, as, for instance, on pebble and sand rocks, where the effects of piece-meal disintegration are more rapid than those produced by sudden convulsions. But even the rocks which have been slowly worn into their present shape, generally shew a certain degree of firmness in their outline, so that, in the execution of them, freedom and decision of touch are never entirely misplaced.

There is something peculiar in the sandstone formations: they do not appear to have been carved out of the bulk of the mountain by the wear of time, or by the violent separation of the parts: neither have they the appearance of fragments brought from afar, and scattered over the surface of the country—strangers to the soil which supports them; but their appearance indicates something between; their grotesque projections seem to be isolated, as at Tunbridge Wells and Brimham, from the strata to which they belong; yet they adhere to it by a base or pedestal, more or less secure.

The stratification of rocks presents itself under the greatest variety of forms, whether it be in the magnitude, the disposition, or the distinctness of the stratified beds. At times, the layers appear on so reduced a scale, as to become objects of detail in the bank or broken fragments which form the foreground of a picture.* Elsewhere they appear on a distant mountain and characterise its general appearance; and the vegetation itself serves, in many cases, to shew the inclination and alternations of the beds. An instance of this presents itself on the southern slope of Mount Rigi, where firs, pasture, and rock alternate with each other, from the verge of the mountain to the beginning of the gentle and luxuriant slope which forms its base.

Sometimes the stratification of rocks presents sudden transitions from one form to another. In the Hunnenflue, valley of Lauterbrunnen, the same rock whose regular quadrangles appear to have been the work of the mason's hand, presents, on another of its faces, the most extraordinary contortions and zigzag forms.*

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* The different degrees of hardness which characterize certain minerals entering into the constitution of rocks and mountains, account for the projection of narrow bands of some of the members of the formations prevalent in a mountain district, as they resist the action of the atmosphere longer than the body of the rock itself, and do not disintegrate so rapidly as it does. In the new red sandstone in particular, this phenomenon may be observed—the thin bands of clay slate projecting considerably in exposed situations, whilst the rock itself presents all those peculiarities which are obviously the result of a progressive, although slow disintegration.—C. Moxon.

A similar transition from regular to broken and promiscuous forms of stratification is observable in a small lateral valley near Ischel. At times the stratified beds are closely united, and marked only by a seam of a different colour: elsewhere they are divided by fissures and gaping clefts, or by the projection of one bed beyond the other. I have seen rocks chipped and cracked in so irregular a manner, as to obliterate almost all traces of stratification: thus a chain of mountains on the confines of Illyria and Italy is composed of whitish rocks, which perplex the eye with innumerable cavities and projections, into which their surface has been most unaccountably distorted.

Sometimes rocks present fissures in a transverse direction, or perpendicular to that of the stratified beds: but an over-scrupulous attention to the minute particulars connected with the stratification of rocks would be injurious to the boldness of form and freedom of execution, of which in some of their combinations they admit so large a share. It is not, however, necessary that the stratified forms should always be avoided, in order to maintain variety;* they sometimes

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* Wherever the internal structure of mountains or hills presents these phenomena to view, the external form bears, in a greater or less degree, the evidences of a less quiet deposition than where the stratification is horizontal or even in its character. It always implies the agency of force, and therefore is always attended by those signs which are not to be mistaken as such, and which are clearly the results of sudden changes in the *modus operandi.*—C. MOXON.

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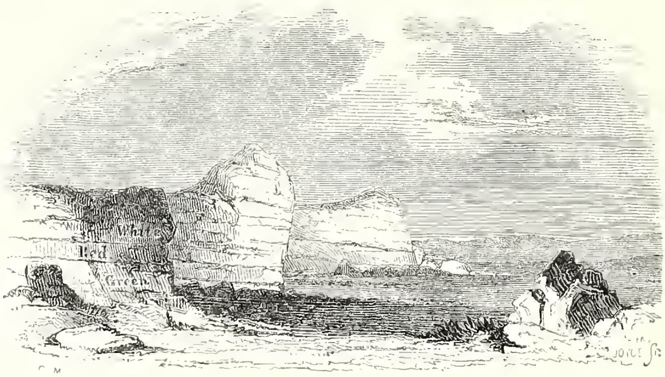
* In illustration of this remark, a reference to the stratified cliffs of Hunstanton, in Norfolk, is not out of place: the stratification is regular, composed of a series of green sand, red marl, and chalk, with a slight dip, so that the different strata are not on the same level with the eye at all points of sight, but as the escarpments and projections of the cliffs are irregular, so do the lines of stratification and the alternations of colour contribute, in an eminent degree, to the variety of the scene, which would not be found in a line of coast free from these particular circumstances of stratification and colour.—C. MOXON.



present a degree of decision and character which becomes an advantage when faithfully imitated. Truth to Nature is a sort of spell which renders agreeable to the eye that which would otherwise be offensive. If we draw the forms of rocks without attending to this principle—that is, without observing what is natural, as well as agreeable to the eye,—we are apt to produce a number of short irregular lines, the combination of which produces reduplication, and not variety. This last quality is obtained rather by approaching to symmetry, than by entirely avoiding it. Two or three lines may be traced almost parallel to each other, if they be of unequal length, and present here and there some slight deviations or interruptions. The curved, or flowing lines, similar to the folds of drapery, which are sometimes met with in rocks, the symmetry of basaltic columns, as well as that most regular form of stratification which, but for its magnified scale, would resemble brickwork, may be introduced into a picture without bad effect, provided they be representations of Nature. But, in this last case, the regular divisions should be kept subdued, and be little conspicuous; whilst a few strong marks, or a gleam of light on some projecting part, should break the mass, and give it a picturesque character.

As the causes which determine the forms of rocks are in many cases very apparent, by directing our attention to them we shall be able, with greater certainty, to represent various rocks in their true character. The influence of existing agencies appears to depend as well on the disposition as on the adhesiveness of the strata. Deep furrows have in some parts been hollowed out at the natural divisions of the beds. When these, however, are disposed horizontally, they appear to be less broken and indented than when they are upright, with their edges projecting from the surface of the hills.* In this case, the softer intervening portions having been gradually removed by the rains, the harder ones project boldly in the form of ridges, and sometimes of isolated crags, examples of which occur in the mountains bordering the Rhine, and in the valley of the Birse, in the Jura.

The bays and promontories of the sea coast exhibit, on a large scale, the unequal resistance which various formations present to the wear and tear of the waves and tides, according to their greater or less degree of durability. When the rock is hard, as on the north, and part of the south coast of Devonshire, there is no very sudden transition in the general form of the mountains, with the decline of their outline towards the sea; whereas in those parts where the eminences are composed of softer materials, they are cut off abruptly, their flank forming sometimes a right angle with the ridge. Where the rocks unite firmness and elevation, they generally advance into the sea, often headed by reefs, detached fragments, or islets. The cliffs in the immediate reach of the waves are torn and scooped into forms which the most sportive imagination could hardly invent. The Alps form, as they stretch out southwards into the Mediterranean, wild and fantastic coast scenery. The islands of Hières, which may be considered as the last ramifications of this chain, are interspersed with needles and bluff rocks, whose appearance is full of threatening dangers.

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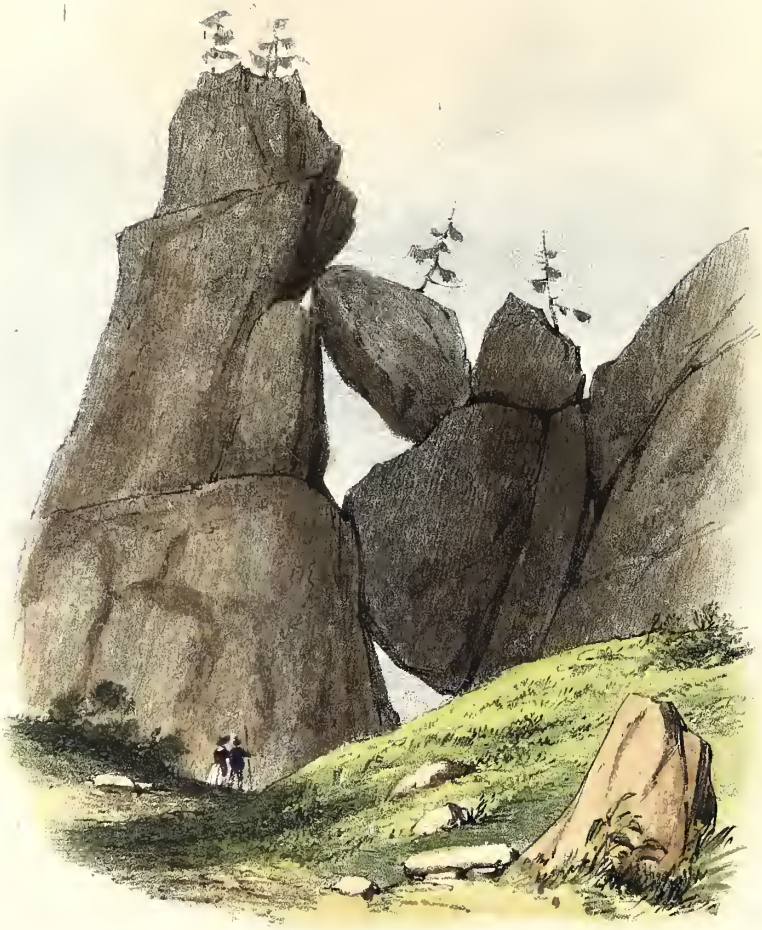
* This mode of occurrence is rare, and always the result of violence.—C. Moxon.

Some of the arches formed by tides and waves, on the southern coast of Devonshire, are of considerable elevation, their summit appearing to rise above the action of the sea. The light of the sky seen through them, has at times a very singular effect, and may, at a distance, be easily mistaken for the sail of a coasting vessel. I have observed the light appearing through one of these singular excavations on the coast near Teignmouth to resemble a sloop at anchor near the shore, with its white sail unfurled against the dark rock, until I came near to the object which gave rise to the deception.

The pictures in which similar excavations and grottoes have been represented, generally bear the blame which so frequently attaches itself to every thing that is not common, that they appear unnatural; but, in fact, the frequency of similar *scherzi* in the works of nature completely justifies their introduction, provided they possess the character which marks each of them in a peculiar manner, according to the causes which produced them.

On the more sheltered parts of the same coast, I observed on a cliff composed of sandstone, that the effects produced by the erosion of the sea were more regular. A succession of small caves, with narrow entrances, opened on a level with the beach. Elsewhere small cavities, similar to Gothic niches, were ranged within reach of the dash of the waves, by which they were apparently produced; whilst the alternations of the strata were marked by horizontal furrows, adding to the very artificial appearance of these interesting marks of the sea's regular action imprinted on the cliff.

Inland caves appear to owe their formation, in a great measure, to the water, of which they frequently form the subterraneous channel. These



H. T. del.

On Stone by W. L. Walton.

HOCH FLUE ON THE ASCENT OF THE RIGI.

Hullmandel & Walton Lithographers.

caves, however, seldom bear marks of the smoothing effects of flowing water at their openings, unless within reach of the stream, or where *tufa* has been deposited; their irregular and picturesque forms appear to be chiefly owing to the successive fall of fragments.

Natural arches very rarely occur in situations remote from the sea; that of Pierre-Pertuis, in the Jura, the origin of which has been the subject of much dissertation, and that called Hochflue, on one of the ascents of the Rigi, formed by the accumulation of several huge blocks of conglomerate, piled one upon another, are instances of this kind.

The fragments of rocks which strew the slopes of valleys beneath the impending heights from which they have been detached, are often objects of great interest; not less from their jagged forms and grotesque positions, than from the impressions they convey to the mind of extraordinary events. They are the silent testimonials of the various revolutions which have signalised the history of Nature. At times, the sharp and naked forms originally given to them by their violent separation from the mother cliff, are still apparent; but, elsewhere, they are covered with a thick coating of various herbs and mosses, from which the young fir shoots up erect, amidst a mantling vegetation of beech and alder. One of these blocks, situated in a valley adjoining that of Ischel, measures sixty or seventy feet in length, a nearly corresponding width, and from forty to fifty feet in height.

Reduplication is not easily avoided in representing the heaps of fragments which so often strew the base of a wall of rocks. The number of detached pieces which are conspicuous, is, in these cases, generally less than it appears to be; a few strokes of the pencil suffice to produce that confused multiplicity of which a mass of broken rocks conveys the idea. The greater number of them should be kept at once small and rather indistinct, and three or four only be made conspicuous by their superior brilliancy of colour.

Tufa rocks, such as those which encompass the falls of Tivoli and Terni, want that simplicity and breadth which give grandeur to a scene. The abundance of niches, grottoes, and excavations of all kinds, assimilate the rocks of Tivoli to habitable dwellings, and in so romantic a spot, to people these recesses with the nymphs and tutelary deities of the falls, becomes the first operation of the fancy; but having once exhausted these pleasurable imaginings, you would wish to see considerable alterations in the forms and colours before you, for the benefit of the material picture. The rocks broken up and intermingled with shrubs, and their sides twisted into shapes seemingly forced and unnatural, suggest any thing but repose. Near the cascades, the rocks are completely covered over with green mosses, partly shewing the shape of the surface beneath, and assuming a kind of intermediary appearance between rock and vegetation. The effect is peculiar, but it is doubtful whether it would be picturesque in a drawing.*

Colour of Rocks.—As rocks, from their erect position and broken form, alternately cast heavy shadows around them, and are exposed to the full glare of the sun, the effects which depend upon the direction of the light greatly counteract and modify their local colours, and produce, in combination with them, a thousand circumstances of lights, shades, and tints, pleasing to the eye. The local colour the most prevalent in rocks seems to be the grey, in a great variety of shades, approaching, perhaps generally, nearer to the white than to the brown, and other dark tints. These last, however, appear sometimes, and have a fine effect at a distance, when in unison with the deep shadows cast by stormy clouds. The grey sometimes passes off into yellowish tints, and sometimes the red abounds, in shades more or less defined. The red and yellow colours appear chiefly in rocks of an intermediate age, and are seen to associate in nature with the forms less bold and elevated of inferior eminences; whereas the grey, in its various hues, generally characterizes those grand masses of rock, which, since primeval times, have lifted up their sharp peaks and turretted summits to the skies. But there are exceptions even in this gigantic class of rocks. A mountain on the north side of the valley of Admont, in Styria, has, near its summit, a large bright patch resembling red ochre. Other mountains I have seen, whose rocky summits were patched with white. A lofty promontory, having a white base with red layers superposed, jets out boldly into the Black Sea, near Varna—a line of vegetation marks the transition of the two strata.

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* The component rocks of any mountain range give to it the character which it possesses; so the granitic ranges may be known by their rude boldness of outline,—the transition rocks by a wildness only somewhat softened down, in the summits and angles being less abrupt,—igneous rocks, by their less natural appearance, as basalt, porphyry, or trachyte,—chalk, by the rounded summits of the hills, &c. &c.; whilst modern formations are strikingly deficient in any of those majestic forms which constitute the charm of mountain scenery or the diversity of hills and valleys.—C. Moxon.

The great abundance of grass and herbs scattered over rocks, demands some attention to their relative tone of colour. Grey and yellowish rocks are generally lighter than the vegetation which grows around, or upon them; but when the tone of the rock is decidedly dark, the herbage appears lighter. The difference in their shade is, upon an average, so inconsiderable, that, in styles where colour is not used, the transition would be very feeble, unless it were exaggerated; but a degree more of light on the rocks, or on the vegetation, would suffice to bring out either, in light upon the other. Where the quantity of light is equal, dark spots of herbs and grass seem, on a rocky ground, to have a better effect than light ones.

Rocks which cut into the blue sky exhibit, in reference to the latter, marked differences of tone which depend upon the ever-varying intensity of light diffused over the atmosphere, and the various conditions of light and shade to which rocks themselves are subjected. Some rocks shew in dark against the sky, even when the sun shines upon them; but they at times appear lighted up in such a manner, as to form a mass of light against the blue firmament. In chalky cliffs, this seems to be the most usual manner of representing them. In rocks of this kind, the colours frequently alternate with the strata, presenting horizontal seams, and zones of unequal thickness; but in the limestone of the Alps, the patches of colour are, in general, independent of the stratified form, unless where the fragments are broken off and circumscribed in their dimensions by the divisions of the strata, which generally leave an angular patch of a yellowish colour. Indeed in almost all rocks of a hard texture, the colours presented by their surface seem to arise entirely from external causes. Small fragments broken off from the mass, never present the same colour on the fractured as on the external surface: even the surface of granite undergoes a considerable change from the exposure to air. Boulders of granite are at times so completely covered with variously coloured substances, as not to be distinguished, without close inspection, from other kinds of rock: this external crust does not diminish the sharpness of outline, or the stony appearance of the mass, but adds to its picturesqueness.

The colours of the mosses and lichens are very contrasted; some are dark, approaching nearly to black; others are of a light grey, nearly white. These last generally appear in small round blots or patches, the largest being about half a foot in diameter, which befits the rocks covered by them, only for foreground ornaments.

There are marks of another kind which extend over very considerable spaces, and present an interesting feature in the colouring of distant rocks. I allude to the vertical bands, chiefly brown and black, which alternate with portions having the general colour of the rock. Some of these bands have an extent of several hundred feet, and reach nearly from the summit to the base of the gigantic walls of rock which skirt some of the Swiss valleys, particularly that of Lauterbrunnen. Their width is sometimes very considerable, although their appearance at a distance assimilates them to a dark riband adhering to the rock. Various circumstances point out the presence of water as the chief cause of these streaks; such as their vertical direction, their prevalence where there are cascades, and the presence of a dark vegetable substance on the surface of those rocks which are moist with trickling water. These bands retain their dark colour long after the streams which gave rise to them have ceased to flow, and thus bespeak the former existence of cascades, some of which the mountain floods and showers may occasionally revive. But in many cases this dark colour seems to form the external coating of the rock itself, which has become quite dry; and I have observed them on a rock overhanging, and much curved, where the water could hardly be expected to follow the sinuosities of the surface. A wall of rocks near the Grundel See, in Styria, exhibits these vertical bands, originating abruptly at a crevice in the rock, or in a hollow sheltered by a projecting cornice. The blackened portion is so extensive, that the streaks are formed chiefly by the light portion wearing the natural colour of the rock.

A vertical rock, forming the side of one of the ancient marble quarries of Mount Pentelicus, is streaked vertically with the following colours:—light grey, inclining to yellow; yellow ochre, brown, and blackish grey: these colours are very vivid, and contrast, in a remarkable manner, with the pure white of the marble on the adjoining parts.

In the beds of torrents, the scum and mosses are removed from the surface of the stones by the continuous action of the water, but this deficiency is compensated by the greater variety of rocks which the stream in its outbreaks has brought together from different parts.

VOLCANOES.

The representation of a volcano, like the portrait of an illustrious or noted character, derives its value from its resemblance; or from the correct transmission to canvass, both of its striking features, and of the smallest incidents calculated to convey a true idea of every peculiarity connected with it. The artist may, however, exercise his fancy with respect to the effect of the scene, and the arrangement of the subordinate parts, in the same manner as, in a portrait, he adapts to his own purpose the drapery, the position of the figure, and, to a certain extent, the expression of the countenance. A picture of a volcano can, therefore, scarcely be expected to possess claims to merit, unless it be taken on the spot, or be a transfer from a correct drawing so executed. A written account of the peculiarities of any volcano could, at most, serve to direct the attention of the artist towards them, and thus elicit further observation.

Vesuvius, the only volcano which I have closely visited, is at once recognised at a distance, by a train of smoke extending a great many miles horizontally, perhaps fifteen or twenty; in this respect unlike Mount Etna, which, from the sea, scarcely shews any traces of smoke. The slope of Vesuvius towards Naples is gradual for more than half its height. This part is covered with vineyards, chiefly enclosed, presenting a striking contrast with the barrenness of the mountain above, whose steep and calcined slopes form a huge embankment to the basin of the old crater. Its peculiar form at once marks the volcano amid the surrounding mountains; whilst its vast truncated summit shews an energy in its eruptions, which the tapering and more symmetrical form of Mount Etna does not indicate. Torrents of lava, of recent date, have found their way down the declivity, and, skirting the cultivated region, have extended nearly to the foot of the mountain. In appearance, they resemble large fragments of scoriæ, confusedly heaped together, and a difference of two or three years in the date of these streams of lava is perceived in the colour.

The ascent of the large cone is about an hour; it contains a circular basin about a mile in diameter, surrounded by eminences varying, apparently, from two to five hundred feet in height; the centre of this basin was occupied, in November 1844, by a smaller cone of scoriæ, lately thrown out, having, on an eye guess, nearly two hundred feet in height, and a diameter of nearly twice that measurement at its base. The surrounding hollow was filled up with lava, only a few days old: its appearance was like that of the upper surface of a glacier, but more cut up: its colour was a dark brown, reddish in the crevices. The smoke rose from the summit of the cone, partly with a continuous flow, partly in gusts, which at times were interrupted in their ascent, being for a moment drawn back towards the crater, as if by internal suction. Stifled explosions were heard in the interior of the crater whenever a large volume of smoke was evolved; but the discharge of stones was accompanied by a deep noise, similar to the rush of steam, freely but copiously disengaged. The height attained by the stones nearly equalled that of the cone.

Traces of yellow sulphur, and drifts of white stone and ashes, on the surrounding slopes, add to the peculiar aspect of the open crater. The whole scene, including the eruption, is perhaps one of unparalleled interest. Nature presents elsewhere inexplicable forms,—rocks piled up to an extraordinary height, rendings of the masses, and contortions of the strata. All these are traces of commotions which have entirely subsided; but here, the very engines of Nature are in action; and stupendous indeed is the scale on which they operate, and awful the experiment by which the eyes of man are allowed to test their energy. At the surface, the changes take place with the rapidity of daily occurrences. The hillock shoots up, the chasm is closed, and the cloud of steam spreads its darkening veil over the serenest sky, almost in presence of the observer: but centuries scarcely mark any waste of the internal agencies, and, compared with the span of human existence, their slow career of operation seems eternal.

By night, the eruption, when moderately active, is similar in appearance to a stupendous firework; the stones sparkle with great brilliancy, and fall like luminous gems on the sides of the cone; whilst masses of molten lava, impelled no farther than the orifice, are seen to congeal and harden on the mouth of the crater. The steam is illuminated by the red glow peculiar to fire, and doubtless constitutes chiefly the luminous effect which is observed from Naples by night.

The effects of former eruptions may be traced to considerable distances on the slopes surrounding Vesuvius. The Royal Gardens at Portici present thick beds of lava rising amongst the trees and flowers, and, in points still more remote, a railway cutting presents irregular masses of lava imbedded in previous formations. Elsewhere the strata of the lava itself present narrow beds, now compressed, now diverging. These compressions are repeated several times, with various contortions.

Extinct Volcanoes of Auvergne.—The extinct volcanoes of Auvergne present features too peculiar and distinct to be omitted in any pencil sketches of the country. The basin occupied by the town of Puy, in the department of the Loire, presents gentle slopes, with few decided forms; but in the midst of the town rises a basaltic rock, lofty and abrupt, and beneath it is another entirely isolated, of much less dimensions. Its form is conical, so steep and pointed, as to present an angle of at least 70° with the horizon, scarcely containing the church and spire, which terminate its summit. These, and one or two other black rocks of the same formation, contrast with the verdure and waving forms of the surrounding country. A rock near the road to Clermont is composed of basaltic prisms or columns. It forms a quarry of road posts, pentagons and hexagons, ready shapened, without the help of art.

In the neighbourhood of Clermont and Issoire may be observed a great many hills obtusely conical, and terminating in a group, or festoon, of dark basaltic rocks. One of these eminences, a league and a half from Issoire, is flanked near the summit with basaltic pillars, very closely set. Their diameter is about a foot, their length from eight to ten feet, and they are inclined towards the summit of the eminence. The head of the cone above is strewed with a great quantity of fragments of various sizes, some of which are very complete pentagons. From the manner in which they lie in heaps, the former existence of some projecting force, in the centre of the cone, is indicated; but the absence of ashes, scoriæ, and indeed of any other stone but the basalt, seems to imply that the volcanic action was very different to that of existing volcanoes.

In some of the eminences near Clermont, the basaltic formations occur on a base of granite or limestone, and present a tabular form. A long wall of basalt, fretted with distinct pillars at the summit, crowns a flattened eminence to the right, as you ascend towards the Puy-de-Dôme. A chain of extinct volcanoes extends to the west and south-west of Clermont: more than twenty are seen from the summit of the Puy-de-Dôme. Their form, in general, is that of a blunted cone. That of Mount Pariou has a very wide orifice; that called Nid de la poule was described by our guide to be a vast cylindrical basin, like the inside of a hat. The Grand Puy-de-Dôme presents a very large regular cone, cut off diagonally at the summit, and connected with the lower eminence called Petit Puy-de-Dôme. Its slopes are formed of calcined stones and ashes. On the 13th of April, 1845, it was covered, to the foot of the cone, with a sheet of snow, fallen a day or two previous.

The volcanic rocks on the ascent and summit of the Gravenoire are dark, porous, and very irregular; too much broken up to be picturesque. This is not the case with the beds of lava which have descended from this mountain and from Mount Pariou. The latter, after a course of several miles, terminates in a shelving ridge impending over the slope of the valley. That of Gravenoire terminates abruptly, forming bold angular masses of a dark coppery colour. The village of Royat now stands upon the ridge of this ancient flow of lava.

The lakes of Albano and Nemi are considered to be the craters of extinct volcanoes; but these circular, and somewhat regular basins, are so disguised by vegetation, and the varied ornaments of old towns and modern villas, as to shew but faintly the print of their geological formation.*

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* Volcanoes and volcanic rocks present material differences in contour and general aspect, according to their nature. Thus, basalt is a component rock of many extinct volcanoes, and is composed of vertical pillars. Porphyry is also a component of extinct volcanoes, and presents rounded summits; whilst modern volcanic rocks are much sharper in their contour.—C. Moxon.

GLACIERS.

It is not a little remarkable that glaciers, which are sought by travellers with so much interest, and which so often call forth remarks not only of surprise but of admiration, should scarcely ever be introduced into oil paintings, or indeed into pictures of any kind which claim elevation of style: and yet, the fitness of an object for representation, in some correct and pure style of art, generally forms a good criterion of its being really picturesque or beautiful. May it not hence be inferred, notwithstanding the beauty of the blue and purple tints in the clefts of glaciers, and the picturesqueness of their pinnacles of ice, that, upon the whole, their appearance is much more calculated to astonish, than to afford that permanent delight, the more especial gift of those mild and graceful specimens of picturesque beauty, which are scattered, more or less profusely, over the fair surface of the earth?

Glaciers, from the number of their angular lines, and the uniformity of the material throughout, have, doubtless, a somewhat hard and monotonous appearance, and partly owe the attention which is bestowed upon them, to their rare occurrence, and to the extraordinary circumstances connected with the production of these gigantic specimens of crystallization.

The cold and whitish colour of glaciers, ill harmonizes with the tints of vegetation; and in oil painting, where all subjects are represented with a degree of force and vigour approaching to truth, the blending of forms and colours of so opposite a nature becomes more difficult, not to say impracticable; whereas, in water-colour drawings, and other similar styles, in which the colouring is lighter, the crudity, which may be termed the defect of glaciers, in reference to the art, becomes much less conspicuous. But, even in this case, they appear to best advantage when kept in the distance, where the harsh lines and colours are modified by the atmosphere. The portraiture of such scenes as diverge from what usually constitutes the picturesque and beautiful, is best committed to a light and sketchy style of painting, in which a deficiency of harmony in the objects composing the scene, will be less perceived than in a more complete style.

Distant Aspect of Glaciers.—On the summit and ridges of the Alps, glaciers have a very different appearance to that which they present when they descend into the valleys; they are then only distinguishable from snow itself, by grey patches which here and there break the uniformity of the surface, and mark the thickness of the crust of ice. The far greater portion of the snow on the Alps, which resists the rays of the sun during summer, apparently undiminished by its heat, rests upon a bed of ice, which thus presents a surface of glaring brilliancy, and sometimes descends, in stages, on the *platforms* and ledges of the mountains.

Under these circumstances, the appearance of glaciers has nothing whatever which might prevent their becoming a suitable ornament to compositions, in any style of painting. It is no longer a portrait of the singularity of a glacier, but an effect highly available, from its picturesqueness and beauty. It is winter looking down upon the luxuriance of a meridian clime.

A great deal of this interesting effect is lost in a near view of snowy mountains. The objects immediately surrounding the observer partake of the severity of the climate, and there is no contrast. To this it may also be added, that the inferior limits of the snow are seldom picturesque;

it forms here and there patches soiled with earth and stones. These fragments, often extending to a great distance from the mass, destroy the effect resulting from concentration. It is therefore very desirable that the picture in which snowy mountains are introduced, should present eminences on a nearer plane, which may screen the inferior boundary of the snow, and give to the transition its fulness of effect.

The above objection does not equally apply to the snow which falls on the mountains in the summer season, its limit being marked by a line of nearly uniform elevation on every mountain.

The interest of snow on distant mountains is greatly enhanced by the delicacy of the hues presented on certain occasions. With a blue sky and clear atmosphere, the brilliancy of the snow on the sides of the mountain which are exposed to the sun, contrasts with its pale but subdued colour on the shadowy side, where the only lights reflected by the snow are those which are borrowed from the blue sky. The aim of the artist is to characterize these transitions from light to shade, tracing, in a general manner, the changes which take place with various inclinations of the sun's rays, or with the passing of clouds over the sky. As to those gradations of tint which appear chiefly at the hour of sunset, and form so great an attraction to visitors in the Alps, they are scarcely imitable in any style of painting. These tints are chiefly remarkable for their extreme softness, and for the tenuity of their numberless shades and modifications; and the traveller who expects a scene of glowing brilliancy from the setting of the sun on distant snows and glaciers, rather than a beautiful series of gradations, would be probably disappointed.

It would be impossible to define these soft ethereal hues. According to my impression at the moment, the parts of the snowy mountain which are exposed to the sun's rays as it approaches the horizon, become slightly yellow, with a shade of pink or red. The warm or reddish tint gradually increases with the more horizontal direction of the sun's rays, till within a few minutes of sunset; at which moment the illumined snow has become considerably paler, and, very shortly after, the last traces of the sun's warmth have entirely disappeared.

During the sun's presence above the horizon, light purple hues appear in the shadows contiguous to the lighter parts; they undergo successive modifications, and are followed, after the entire disappearance of the sun, by tints of a dull and heavy grey, somewhat remarkable, but not agreeable to the eye. The rose may be mentioned as one of the tints which accompany these transitions from light to darkness on the snows of the Alps. Probably many others might be added, could a name be found. Diversity in the tints is, indeed, here not wanting, but expressions wherewith to designate them.

TREES.

Introduction.—Trees are, with respect to the landscape, what the human features are to historical painting: they are not only important objects, but they are the support and foundation of the style. A scene which does not exhibit a tree, under some form, becomes a waste, a desert, a rocky coast, a quarry, or some other characteristic portrait of inanimate nature, but scarcely constitutes a landscape. The presence of trees is, therefore, most essential to rural scenery, and their appearance is intimately associated with rural and pastoral habits.

To this main consideration in a painting succeed other very important ones. Trees afford us examples of the vegetable kingdom in its most expressive and energetic developement, and impress us with great and magnificent ideas of the power of Nature to raise from a seed, or a kernel, a sublime and lofty edifice. Trees, in their various shapes and characters, form the principal and most undeceiving mark of climate and country: they are direction-posts, on which the eye of the traveller at once reads to what region of the globe the scene belongs. By the number, the situation, and the grouping of trees, we are informed, in a general, though superficial manner, of the prevalence or deficiency of agriculture, and, to a certain extent, of its nature and object. Where forests extend far and wide, unsmitten by the axe, we see, or at least fancy that we see, Nature in her primitive form, bursting forth in all the luxuriance of uncontrolled energy. But trees planted at intervals from each other, in rows, or in clumps, shorn into impenetrable fences, or intermingling fruit and foliage of varied and dissimilar nature, shew at once that man is possessor of the country, and point out various stages of improvement in agricultural and rural embellishment.

If trees, in crowded and far-extending numbers, imply wildness, this is not the general characteristic of the tree taken separately—not even of the forest tree. Indeed, protection and safety are associated with the leafy roof which shelters us from the storm and from the oppressive heat of the sun. But wherever Nature is left to her own course, uncontrolled, undirected by labour and art, wildness becomes one of the marking features of the scene, whether revolving years have left their print on forests, or on the monuments of nations. It needs not only that a country should have received, for a time, the beneficial effècts of human industry; but that its influence should have been kept up by successive generations, in order that the scenery should preserve that friendly and smiling character which is the mark of civilization. The ferocious tribes have either been exterminated or driven into their most distant recesses: protection and security to the harmless portion of the brute creation have become the characteristics of the scene; now affording the pleasing sight of flocks and herds, either grouped with order, according to their distinctive character and habits, or mingled together in peaceful harmony.

These are incidental points which cannot be directly expressed in the language of the artist; but the general impression of undisturbed rest, may easily be conveyed to the mind of the observer by a faithful representation of a forest scene. An idea may also be given of the difficult and toilsome path which the wanderer has to tread in the recesses of the woods—of the frequent and unexpected obstacles which check his career, which excite expectation, and give a mysterious interest to every footstep. Thus it is that the distant tower, or the tapering steeple, just perceived through the mazes of the thicket, is not looked upon as a picturesque object only: it becomes the source of encouragement; and the footsteps of the pilgrim may be almost seen to quicken as he reaches the spot where, through a break in the foliage, the welcome object first bursts upon his view.

In Connexion with Painting.—The art of distinguishing trees by their pictorial qualities requires a course very different from that pursued by botanists. Little assistance can be derived from the examination of certain minute parts which afford, in a few expressive and invariable characters, the entire identification of the species. The resemblance can be traced only in general analogies: sometimes similar characters are few in the same genus, and those which differ are numerous. Sometimes, also, analogy appears closer in individuals of a different species, than of the same; as, for instance, accidents of growth sometimes produce a greater resemblance of the Scotch, to the Italian or stone pine, than to a kindred tree, or an elm and a lime would appear, to an eye little exercised, nearer allied to each other, than pairs of either kind differently affected by growth or accident. But the practised eye distinguishes, amid these diverging elements, those analogies which may be made applicable to the identification of the species in a general manner. Resemblances, constituted as they thus are in vegetation at large, are the most favourable that could be imagined to picturesque beauty; and whether the pursuit be elegance or variety, the most fertile imagination remains unfettered in compositions based upon the various forms and aspects of vegetation.

There appears to be considerable difference of opinion as to the manner of representing the leaf in various kinds of trees. In the opinion of many, the form of the leaf should be but slightly indicated, even in the prominent parts of the tree, whilst others would have it more distinctly marked. These differences of opinion arise, in great measure, from inequality of sight. Some persons are able to distinguish, at the convenient distance for drawing a tree, the peculiar shape and character of its leaf; whereas others are unable to distinguish any thing beyond the forms of the masses and the general character of the foliage. Thus, the means of identification differ with almost every individual who observes. But, setting aside these differences, which the impossibility of bringing the sight of various individuals to one common focus is likely to perpetuate, the question of a distinct, or of an indeterminate touch for the foliage of trees, remains, to a considerable extent, one of taste. For our guidance, we have the examples of the old masters; but a change in the style of painting, as well as a more general taste for the culture of trees, and, consequently, a better knowledge of their characters, often render necessary a considerable deviation from the course which they have pursued. The landscape portrait is now in general the most acceptable production in this branch, and it requires that the various kinds of trees and plants should be indicated with much more precision than in the composition, or classical landscape. On the other hand, it should be remembered that, in every production of art, pleasure is expected before instruction: too great a stress on the minute characters of objects, by confining the attention, might narrow the sphere of intellectual enjoyment. The chief sources of this pleasure in the landscape are effect, harmony, and variety; and such a degree of precision in the forms of secondary objects as would detract from the simplicity and unity of the two first qualities, would necessarily be injurious to the picture. Variety, however, in a wooded scene, must be in a great measure the result of a characteristic distinction in the foliage of the trees and shrubs; and the most desirable point of attainment in their execution would perhaps be that of marking this variety with the least apparent effort, so that the eye would receive that pleasure which is derived from the expression of a great diversity of forms, without being diverted by their obtrusiveness, or the apparent labour bestowed on them, from those more general qualities of a picture, which constitute its excellence.

The course to be pursued must necessarily vary considerably, according to the trees and the nature of their foliage. For instance, the prevailing uniformity in the foliage of the lime and beech, requires that other characters should be selected in the representation of the tree, than those afforded by the cut of the leaf. In the oak, although the leaf itself is picturesquely varied, the general characters are so marked as to render the graphic imitation of it quite superfluous; whereas in the plane, sycamore, and horse-chestnut, the leaves themselves have so decided a character, that the faithful imitation of them may enhance the merit of the work. I have seen the angular leaf of the plane shewn with a very good effect in modern landscapes.

Objections may likewise be raised against marking, with too much precision, the vegetation of different countries. The introduction, in great numbers, and in too conspicuous a manner, of the trees and plants peculiar to a country, though perfectly suited to portrait-like representations, would disturb the unity of effect and deep sentiment by which a *composition* should claim attention: the memory and energies of the mind must here be at rest; all is tranquil and contemplative enjoyment. In his "Flight into Egypt," Claude has not interrupted the calm uniform impression of repose which forms the characteristic tenour of the subject, by the introduction of exotics unknown to every observer: the palm alone has sufficed to point out the locality: the remainder is not discordant with it; but it does not burden the memory with specimens of foreign growth, or excite the mind to scientific inquiry.

A frequent source of difficulty in the execution of trees is the depth, or roundness, requisite to their natural appearance. In nature there is, on an average, an equal quantity of foliage before the trunk and behind it, but it is very seldom that this obvious fact is carried out in drawings and paintings of trees. There seems to be a very general disposition to shew more of the trunk and branches than is consistent with the density of their foliage. This may arise partly from the importance which the skeleton of a tree has in determining its general figure, owing to which, scrupulous attention is bestowed upon the delineation of it, and its clothing becomes proportionately neglected. The result, however, is, that there is a want of broad masses of foliage on the nearer side of the tree to give it roundness, and that the head is thrown over on the other side of the trunk.

The quantity of light seen through the foliage is, in general, greater in nature than seems to be admitted, from the usual manner of representing trees in art. Whenever the trunk and branches are much seen, the head of the tree is either light and porous, or is broken up into detached masses. The birch, and some kinds of poplar, are perforated all over with small holes, without their appearing to disconnect or break up too much the masses of foliage. Nor does there seem to be a good reason why an equal degree of transparency should not be given to trees by art, without interfering with their unity of form and character. The blue medium behind the tree renders the distinction between the lights which are seen through it, and those which appear on the foremost masses of foliage, very easy to effect in painting; though in pencil-drawings, where the lights of all kinds are alike rendered by the whiteness of the paper, the distinction is less easily made. On the shape and distribution of the light-openings, seen through the trees, depends very much its natural appearance. They are generally put in where the foliage becomes thin and transparent, or where, from the absence of front masses, the eye penetrates into the interior; but their occurrence in nature is very irregular, and sometimes the patches of daylight are cut into by the dark leaves in the centre of the tree, or by the brighter masses on the surface.

An important point with respect to the character of roundness in the head of a tree, is, the progressive narrowing of the masses as they come nearer to the external outline, the foliage there appearing denser than in the centre. The character of roundness may be very much assisted by marking the true perspective decrease of the leaves, from the advancing to the retiring branches. At the distance at which trees in the foreground of a picture are usually placed, they would undergo a diminution of about one-third, from the foremost to the farthest part of the same tree. But this perspective gradation is generally little attended to, and the means more usually employed to give apparent depth, is to give increasing indistinctness to the foliage as it recedes into the more distant and more hidden parts. The touches of the leaves which just emerge from complete shadow in the dark recesses, should be kept exceedingly faint, and two or three distinct gradations should be maintained from thence to the broad masses which receive the full light of the sun.

For the grouping of trees, I refer to the grouping of figures. The principles, according to which, form is made to yield such combinations as are most grateful to sight, are the same, generally speaking, in all objects; but in proportion as form becomes more complicated and varied, the force of rule is diminished, and the sway of taste proportionately enlarged; and in trees, where diversity of form is a leading feature, those means for discovering beauty which systematic principles afford, must be more deficient than elsewhere. However, the alternate opacity and transparency of the masses of trees allows, or rather requires, an arrangement in the distribution of them, which does not belong to objects equally massive in all their parts. An arrangement in which taste perfectly concurs, is that of placing the lighter kinds of trees on the outskirts of the clump or mass, and of leaving to those which are more dense and opaque the office of filling up the centre. Where there are more breaks than one in the grouping of trees, it is the widest and most luminous opening, whose borders require to be softened by the interposition of the lighter kind of tree. When the gap is narrow, this kind of mediation between a dark mass of foliage and a light background is less required; and sometimes the dry outline of a trunk may come in contact with the distance, especially towards the sides of a picture. Variety itself requires that the transition from the dark to the light portions of a picture, should be more sudden and abrupt in one part than in another; and although these transitions take place with an infinity of modifications, it is in general where the expanse is wide and central, that the effect of a picture most requires a boundary gently graduated and softened.

The observations which Gilpin makes with respect to the balance of trees are very applicable to painting: they are judicious and tasteful; but, perhaps, carried rather too far in one or two instances, as, where he says, "that nature operating freely is as much inclined to balance a tree upon its trunk as an animal upon its legs." He seems to have overlooked here the firm hold which the roots of a tree have in the soil; which dispenses with that nicely-adjusted balance, and moveable equilibrium whereby animals are enabled to maintain their position, and which render their very motions secure. Doubtless, a certain degree of balance is required between the limbs and foliage on the one and on the opposite side of a tree, but the adjustment of this equilibrium will depend upon the proportion which the head of the tree bears to the stem, upon the size of the roots, and the nature of the soil. Gilpin observes, "A tree hanging from a rock, though totally unpoised, may appear beautiful; or it may have a good effect when we see it bending over a road, because it corresponds with its peculiar situation." "We do not," he continues, "in these cases, admire it as a tree, but as the adjunct of an effect, the beauty of which does not give to the eye leisure to attend to the deformity of the instrument through which the effect is produced." The representation by art of incidents of this kind, requires a more scrupulous attention to probabilities than nature herself would warrant. In nature we often see a tree kept up in a falling position, having apparently very little support, either from the nature of the soil or the extent of the roots; but in art, where every thing that is not satisfactorily explained is considered a violation of nature, these singularities must be accounted for. The tree must either have the accidental support of some neighbouring stump or branch; or the uneven and rocky nature of the locality must distinctly shew, that, owing to these causes, the tree has contracted its peculiar habit of growth. The same circumstances which cause the stem to strike out in an inclined position from the impending cliff, would also retain it there after it has attained its full growth. But if we observe a tree growing in the same position from a meadow, or the level of a valley, we attribute it to some temporary and violent cause, the explanation of which would form too great a digression from the simple and obvious facts, which it is the purpose of the pencil to portray.

GENERAL OUTLINE OF TREES,

As Seen in the Distance.

If we glance over a distant wooded prospect, two kinds of forms first strike the eye, the rounded or globular, and the elongated or tapering forms. The great mass of vegetation assumes the first of these appearances; whilst the second, less frequent, is presented by the poplar, and also by the cypress when introduced. As you draw closer to the scene, the number of forms increases one by one; the umbellated summit of some trees, supported high in the air by a long stem, detaches itself from those whose masses of foliage swell down to the ground: or the fir, rising to an acute point from a diverging base, impresses you with the image of a cone. Such are the forms which constitute the first elements of variety in the scene, yet too distant to afford those more complicated and varied shapes which are unfolded in a closer view.

Loudon attributes the notions which are conceived of the beauty of trees to the resemblance which their form bears to certain regular and symmetrical figures, such as the sphere, to which the tufted heads of some trees present a near resemblance, or the egg, placed either upon its small end, or upon its broad one, according to whether the tree forms a gradually expanding head from the trunk, or spreads in the form of a bush to the ground. But the same author further maintains, that the vegetable kingdom derives an increase of beauty from the multiplication of these forms in the different parts of the tree; an extension of the theory which considerably diminishes its force, for, in proportion as the figures contained in the general outline of a tree are multiplied, those more simple ones which first strike the eye become lost. Indeed, we might find in the great multiplicity of figures, contained in the general outline of a tree, grounds for inferring that the pleasure derived from the shapes of trees is very little owing to their resemblance to any definite and regular forms. Trees, in their varied and indeterminate shapes, can at most but suggest ideas to the imagination. They do not convey those distinct impressions which result from objects possessing a defined and uniform character. Hence, perhaps, the prolonged and fluctuating pleasures imparted by forest scenery.

DESCRIPTION OF TREES.

The Oak.—The oak ranks among the most spreading trees. In France, there are four or five kinds of oak; and in Italy, Greece, and Spain, they are still more numerous, including the evergreen species; but in England, the indigenous species are limited to two, so nearly alike as not to require a separate description for the purposes of the art. In every period, the oak has been considered as the representative of strength, the superior claims to which attribute, it holds not less from its external appearance and character, than from the combined hardness and toughness of its wood. It appears to extend its energy to the utmost limits of the tree, since the leaves spring in stiff and erect bunches to the tips of the branches. The trunk is large in proportion to the tree, and firmly rooted; and its knotty and tortuous limbs are so massive, that, as Gilpin says, "they appear rather to divide from the trunk than to spring from it, carrying with them a great share of the substance of the stem." They are flung out to a considerable distance from the centre, which gives a great horizontal extent to the head, where the tree has room to expand in unrestrained growth; and even in more confined situations, its form seems to be less influenced by this circumstance, than that of other kinds of trees; it still throws out tortuous branches, not on every side as in the solitary standard, but with sinuous curves and abrupt angles. The ramifications of the grove intersect each other with confused and rustic tracery, and obscure the paths beneath with their mingled and clustered foliage. You very seldom see it rear, like the beech, an erect and undivided stem; and it then seems to be owing as much to the effects of the pruning-hook as to those of locality.

Gilpin extols the oak alike for its picturesque beauty, for the dignity of its station in the forest, and its usefulness to man: he maintains, "that it is the most picturesque tree in itself, and the most accommodating in composition." I can only concur in these views by limiting their application to those individual trees which, either from growth or accident, have a decidedly picturesque character. Beauty and perfect suitableness as a model, appear to me to be more rare in the oak, than the like pictorial perfections are, in other trees, particularly in the elm, of which there are very few specimens which would not furnish excellent studies.

The oak, as it grows alone, often acquires a certain regular formality, from the tendency of its branches to start from one point; giving to the tree a form resembling the verticillated structure of certain plants, or the radiating spokes of a wheel; below the conjunction of which, the bole is frequently studded with a circle of huge knotty protuberances. The skeleton of the oak sometimes derives monotony from its very irregularity; its sinuous and winding branches form a multiplicity of consimilar intersections, which a few straight lines, or a sweeping curve or two, would greatly relieve. The deformities to which the oak is subject, would be less properly passed over than those of trees which possess inferior picturesque beauties. Gilpin very appropriately remarks, "It is through age that the oak acquires its greatest beauty, which often continues increasing even to decay, if any proportion exists between the stem and the branches."

The form of the oak-leaf adapts itself to the touch of the pencil and brush better than that of any other leaf; and in no deciduous tree, perhaps, is the general appearance of the foliage equally marked and characteristic. The spray forms tufted knots, sometimes happily combined in fine irregular masses; but sometimes also, rather too bunchy, and filling up too much the interior of the tree, owing to the shortness of the twigs and lateral branches. The foliage is more tardy than that of most other trees; and its green is yet lively, when the elm and horse-chestnut begin to wear a more dingy hue. The colour of the trunk is a dark grey, approaching to brown. The bark forms close and regular ridges; and the sound tree appears to be little liable to moss: it is a thin green moss, chiefly on the exposed side; but Gilpin mentions a variety of mosses clothing the bole of the oak as well as of other trees. Owing to its spreading character, the height of the oak does not, according to Loudon, exceed on an average, fifty feet. "On sand and gravel, it becomes stunted and dwarfish, and on mountains often assumes the character of a bush; but in rich loam it attains a height of 100 feet and upwards." Among the largest mentioned by the same author, is "an oak in Tibberton Park, Herefordshire, 108 feet high, and one in Studley Park 118 feet high. One in Wootton Park, ninety feet high, covers an area 150 feet in diameter: the girt of the trunk, at a foot from the ground, is twenty-five feet."

The Elm.—The elm is a tree of noble proportions and stately growth: on an average its dimensions appear to exceed those of any other tree of this climate, and though its beauty is not of so high an order as that of some other trees, yet, unless disfigured by the hook, it presents itself less often than any in an unpicturesque form. Its limbs divide early, and are still more ponderous than those of the oak. Its foliage forms rounded masses, having a great breadth of surface, yet distinct from each other. It soon acquires a dull and brownish tinge, and though the leaf is not picturesque in shape, its smallness in proportion to the tree gives it an indistinct appearance, not difficult to imitate. The bark resembles at a little distance that of the oak; but a close inspection shews the ribs to be broader and less regular. The colour is of a somewhat darker and colder brown, which has a good effect in shadowy places. The foot of the trunk does not spread.

The general figure of the tree is bold, but not fantastic. A wide gap often separates the inferior boughs from the superior ones. Sometimes both these masses are but slightly connected, and somewhat resemble two cones, the one reversed upon the other. To the practice of lopping the inferior branches, the elm owes a much greater variety of shapes than it does to any difference of species The superior branches are sometimes allowed to protrude in large pendant masses. At other times, a stem quite naked, or clothed in bushy twigs, bears at the summit a single cluster of dark and compact foliage.

Two or three elms adapt themselves admirably together; the wide intervals between the branches preventing that heaviness which sometimes results from the union of large and massive trees into one clump. In France, the elm is rarely seen growing in clumps; but it is more used, perhaps, than any other tree to form road avenues; and from the cutting off of the lower branches, does not expand near the ground like the unmolested tree of the English park and meadows.

After the common elm, the kinds most abundant in England are the mountain, broad-leaved, or Scotch elm, and also the American elm. These kinds are characterized by the largeness of their leaf. The Scotch elm is less upright than the English elm, its branches are longer and more spreading. The American elm is described as a magnificent tree in its native land, attaining an immense height, and forming large spreading festoons of verdure. But the differences which depend on soil and situation are more striking to a general observer than those connected with the species. The British elm loses in confined and dry situations that spreading luxuriance for which it is remarkable; even the leaf becomes smaller and crisper; and the diminutive head assumes shapes less varied. This is the appearance presented by the elm in some of the parks and walks about London.

The Lime.—In its general character and in its lofty growth, the lime bears considerable resemblance to the elm; the branches, however, are more collected towards the summit of the tree, they are less tortuous, but more ramified. The masses of foliage are more pointed and more shelving than those of the elm; they are of a paler and more delicate green. The bark is similarly marked, but less rough, sometimes nearly smooth, and of a lighter colour: the roots are more prominent.

The defect of the lime, as a pictorial tree, arises from the number of its pendulous shoots, which hang in monotonous profusion. How far the lopping off of the lower branches increases this defect, by destroying those irregularities of growth which give character and picturesqueness to the tree, is sometimes difficult to tell. At about midsummer, bunches of flowers of a delicate pale yellow are mingled profusely with the foliage, and terminate the shoots, giving them a rich fulness, both pleasing and ornamental; and as it breaks the symmetry of the leaf, it may be considered a picturesque addition. The upper portion of the tree often hangs over in rich and easy masses of a profuse and beautiful foliage; and when its natural stiffness and symmetry have been accidentally checked, its appearance, particularly when combined with other trees, is very fine, adding to a picturesque disposition of the branches a rich and abundant clothing, which sometimes teems with luxuriance down to the foot of the tree. The lime affords instances of an extraordinary developement of vegetable growth. Loudon mentions, among other tree-giants, "a lime-tree in Ditton Park, the circumference of whose trunk is twenty-two feet, at one foot from the ground; and another in Moor Park, Hertfordshire, the head of which has a diameter of 122 feet, and attains a height of nearly 100 feet: the diameter of the branches is from six to eight feet, and the girt of the trunk twenty-three feet three inches." Bosc mentions, in the *Dictionnaire d'Agriculture*, having seen limes planted by Sully, under whose branches the inhabitants of a whole village could take shelter. An instance is also mentioned of a lime throwing out horizontal branches which take root, and surround the mother tree, like the Banian, with a shrubbery of young trees.

The Beech.—The growth of the beech is much influenced by confinement. In the close forest, its stem runs up erect without leaves, and almost without branches, to the top, where the interwoven summits sometimes present a matted surface, forming an impenetrable carpet of verdure; this is beautifully exemplified by a forest of beech, in the valley of Nero, near Wiesbaden. Pendant masses of foliage line the skirts of the wood, so that from without, the eye cannot penetrate into the vaulted spaces behind. When in complete liberty, the form of the head is rounded, or rather oval. The trunk of the beech is remarkably smooth and cylindrical: it often inclines to green; but in exposed situations and in Alpine districts, it is of a light grey; and now and then it is slightly marked with horizontal stripes. The mosses are of various colours, and on some trees very abundant, though others are remarkably clean. In a wood near Ischel, in Upper Austria, I have seen the moss hang in clots to the dry branches, reminding me of the ample and pendant sleeves of a magician; but this was probably a disease. The trunk is less divided than that of the oak and sycamore. The branches which are comparatively small, and very attenuated towards the extremity, are inserted nearly horizontally in the main stem; or radiate upwards, particularly in the higher part of the tree. With the exception of the lower branches, which sometimes form a sweep towards the ground and again rise at the extremity, they are little curved, running straight from joint to joint, but having their ends forked and spreading. When they form sudden bends and elbows, it appears to be the result of accident or of ill growth. The luxuriant tree presents thin and spreading layers of foliage, shelving above each other with seeming regularity, sometimes from the very turf; it is frequently bushy towards the top.

Gilpin ranks the beech very low amongst picturesque trees: he qualifies it "an overgrown bush; the branches," he says, "are fantastically wreathed and disproportioned, twining awkwardly amongst each other, and running often into long unvaried lines, without any of that strength and firmness which we admire in the oak, or of that easy simplicity which pleases in the ash; in short, we rarely see a beech well ramified." There may be a certain formality and triteness in the general appearance of the beech, which renders it unfit for occupying any solitary situation; but the beauty and richness of its foliage make ample amends for these deficiencies. In Switzerland and Styria, it is clothed in lively green; although in England, or, at least, in the neighbourhood of

London, the glossy surface of the leaves is of a duller hue, varying considerably with the tree. Owing to the compact and dense nature of the masses of foliage, the shadows are intense, and convey an impression of coolness, the more pleasing and refreshing, from the reflexion of the cold tint of the sky by the polished upper surface of the leaves. These tints appear chiefly on the lower masses of foliage, which often reflect to the eye the direct light of the sun with a sparkling cold effect, which contrasts beautifully with the warm transparent glow shewn by the under surface of the leaves in the upper part of the tree, where the light of the sun is seen through them. These effects of colouring, more perfect in the beech than in other trees, from the combined thinness and polish of the leaf, are a source of great richness and variety; and in the representation of the tree, the harsh and too regular form of the leaf is easily obliterated in the transcendency of the effects to which it gives rise. Loudon mentions from sixty to eighty feet as the average height of the beech, and says, that when drawn up by other trees it attains a height of 100 or 120 feet. [See *Alpine Trees*, p. 132.]

The Hornbeam.—In England, the hornbeam is a much smaller, but proportionately more spreading tree, than the beech: its leaves, being serrated and less polished, form a more picturesque foliage; though its disposition in horizontal tiers is very similar. Indeed, the distinction between the two trees is almost too nice for the purposes of art, particularly if the beech be stunted or very spreading. The principal differences are, a more furrowed stem towards the roots, more sinuous limbs, diverging sometimes in the form of a bowl, and a certain dry appearance of the timber in barren trees. Its etymology is derived from the great use made of its wood for the yoke of oxen. In Upper Austria, I have seen it with trunks of an enormous size, branching off near the ground with tortuous limbs, and stretching its head over a very large area; the roots extending in thick and knotty sinews up the trunk.

The Ash.—The ash is one of those trees which is subjected to the alternate vicissitudes of good and ill-treatment. At times it becomes a beautifully spreading tree with a spherical head and drooping branches (variety *pendula*), at times, despoiled of its foliage for the food of cattle or for the convenience of the cultivator, nothing is left but a tuft of dark foliage at the summit of a stiff unsightly stem. However, the pinnated form of the leaf at once distinguishes it from other trees of the field. The foliage, of a dull warm green, is rather loosely disseminated over a convex head, in little clusters or bunches, which, owing to the difficulty of rendering the pinnated form of the leaves, may be of considerable use for indicating its character. The trunk is smooth when young, and of a warm brown colour; it becomes wrinkled as the age of the tree increases, and finally forms closely set ridges. The branches, which are very apparent, have an easy pliancy, notwithstanding a degree of thickness which the lightness of the foliage does not seem to require. In the Alps of Styria, the tree is very seldom seen in its natural state, owing to the excellent provender yielded by its foliage; it has consequently a short stumpy appearance. The trunks are seldom large; the largest have a diameter not exceeding two or three feet, and bear but very short branches. This is very different to the developement which the tree sometimes exhibits in England. One, mentioned by Loudon, at Woburn Abbey, is ninety feet high, and the trunk measures fifteen feet three inches in circumference at three feet from the ground. The largest in Scotland, situated at Carnoch, in Stirlingshire, has a height of ninety feet, with a trunk measuring thirty-one feet in girt at the ground.

Gilpin assigns to the ash a pre-eminent station amongst elegant trees. I believe that its advantages are much more apparent in the park, and in those combinations of scenery which meet the eye of the rambler in a wooded country, than in the picture. In its natural and thriving state, the head of the ash has too much fulness to mingle easily and picturesquely with trees of a more massive character; and its foliage wants that lightness of colour which causes the willow and the spreading poplar to contrast so well with darker masses. In the ash the contrast is one of form alone; that of colour is wanting. This, however, is made up for, when the warmth of a western sky gives additional transparency to the leaves, and causes them to harmonize with the more luminous portions of a picture; neither is the artist bound by any formalities of growth. Nature differs widely from herself according to locality and circumstance; and a painter can avail himself of these accidental differences to their fullest extent.

The Mountain-Ash.—The mountain-ash, though of an entirely different genus, has a sufficient general resemblance with the ash, ostensibly to justify their community of name. The difference is most apparent, when its bunches of red berries replace the shrivelled pods of the common ash. The tree is much smaller, and the form of the leaf more neat and regular. Its most natural situation is in the mountains, but it is often planted on the plain, where it is seen growing out of the hedges.

The Horse-Chestnut.—The horse-chestnut should occupy a distant, or at least a central position in the landscape. Its dense, broad masses, hanging like drapery, are imposing, though formal, and the perspective of its avenues is majestically grand. In a nearer view, the clusters of leaves are too large and too well defined to be picturesque, and its round and symmetrical outline renders it little suited for a solitary situation. In forest scenery, as in the wild picturesque landscape, other trees will be found to answer better; but on the royal terrace, and in the avenue, it has no substitute. Its combinations should not be with other trees, with which its uniform, unbroken outline prevents it from mingling; but it becomes beautiful by the multiplication of its own form, and especially when dressed in the deep and solemn gloom of the advancing season. The change in the colour of the leaves from the early breaking of the buds in spring, is rapid and progressive. The leaves become very dark towards the end of June, but unequally so in different trees, so that in a long avenue there is considerable variety of tint, and there is perhaps more than might be expected in the folds of the masses. In no tree, perhaps, can the eye less penetrate the external green envelope. Only a small portion of the stem is seen beneath this luxuriant head: it is of a greenish colour, more or less cracked, according to the age of the tree. The attire of Spring, however beautiful in nature, is too gaudy for representation. The pyramidal clusters of flowers seem pretending, even for a tree of ornament.

The Spanish Chestnut.—This tree has a firm and masculine character, and in England, perhaps in low countries in general, it does not seem to give way to those irregularities of growth which, in the southern Alps, often disguise the true nature of a tree. In the sound tree, the trunk and branches are free from spots and blemishes, from the root to the commencement of the leaves; and the bark is chiselled out into close and regular furrows, which either run straight up the stem, or take a spiral direction, according to the disposition of the knobs and branches, or the twisting of the trunk. In sheltered situations, its growth is erect or slightly undulating. The branches, though small, are thrown out boldly, often horizontally, or even inclining downwards: the long leaves are collected in bunches, with central catkins or nuts, and have a starry effect. This concentration of the smaller clusters does not prevent a fine and picturesque massing of the foliage, but rather adds to its character. Implicit and correct imitation, however difficult, is not unattainable, and, judging from some well-executed examples which have come under my notice, it seldom rewards so well as in the Spanish chestnut.

The Maple.—The humble and diminutive maple (*Acer campestris*) is the only tree of its genus truly indigenous to Britain: it is the native type of a superb class of trees, some of which have become almost naturalized from the remote period of their introduction, and the extent to which they are cultivated. The most abundant are, the common sycamore or great maple, *A. pseudo-platanus*, and the platanus-like maple, *A. platanoides;* extending, according to Loudon, from Norway to Switzerland, and introduced into England in 1683. [*For description, see Alpine Vegetation, page* 132.]

The variegated sycamore is one of the handsomest garden ornaments. It would lead too far to mention the drooping ash-leaved sycamore, and other varieties. The common maple thrives in the hedges and thickets, where the neglect in which it is held shews it to be the hardy offspring of the soil. Its growth does not commonly exceed that of a bush, but it has been seen to attain the height of from thirty-five to forty feet. Its leaf, which but for the obtuseness of its lobes would be the sycamore leaf in miniature, is very picturesque, and forms tiers of small compact masses of a dark tinge. The stem, grey and rather cracked, is sinuous and ramified.

The Plane.—The plane is more regular and formal in its growth than the sycamore: its stem is generally erect; when curved, its motions are flowing and easy:—the wood of the branches is thinner and more scanty than in the sycamore. The outline of the leaf is even more decided, and its masses, less spreading, constitute rather a tent or pyramid. The falling off of the thin layers of bark gives the trunk a mottled appearance: the prevailing tint is grey, but as the bark scales off, light spots and patches appear, of various shades, according to the age of the under surface, and yellowish when the bark has been recently removed.

The Poplars.—To the poplar, beech, and willow, is chiefly assigned the office of breaking the heaviness of the massive trees, by intermingling their lighter foliage, and by diminishing the transition of the outline. The poplars effect this with less elegance than some kinds of willows, but they abound more in their primitive beauty, unmolested by the hook. These are the poplars with spreading heads, having a foliage sometimes very thin and disconnected, sometimes in clusters or small masses, but, generally speaking, requiring, for picturesque effect, the support of a firmer and more substantial foliage.

Amongst their general characters may be noticed the upward tendency of their branches, which run out to a great length; the pointed form of the masses which terminate the summit of the tree; a stem furrowed towards the foot, and sometimes girt higher up with a smooth whitish bark, either at intervals, or continuous, and extending to the branches.

The Lombardy poplar distinguishes itself from every other kind by its height and the peculiarities of its growth. Its spiry, or tapering form, needs only to be mentioned, in order that the species be easily identified. Picturesquely considered, it can hardly be appreciated to its due value, especially as it is the only tree of its class which has become truly naturalized and abundant; and such is its usefulness in ornamental plantations and gardens, that, before its introduction in the middle of the last century, they must have been in a great measure deprived of that beautiful variety now peculiar to them. In the expansive landscape, its columnar form becomes a rallying point to the eye; and, in the enclosed scene, the lesser trees and shrubs appear to cluster about its foot, as the humble dwellings of the peasant are seen gathered together under the sacred protection of a spiry tower. Its demeanour combines stateliness with ease: it stands erect, but yields to every breath of air, and bending more or less according to the force of the wind, reassumes, uninjured, its primitive shape.

Though tapering, the poplar is much less rigidly so than the cypress; and its foliage, though somewhat dark and heavy in the thriving tree, is considerably notched at the sides, and sometimes split near the summit in such a manner, that one tree has the appearance of two or three trees clustered together. This is owing to the length and parallel direction of the boughs which, as the wind blows, separate from each other with unequal and varied motion, giving great variety to the appearance of the tree. The stem, unlike that of other poplars, is very rough, and irregularly marked. In the old tree, it is channelled with deep furrows corresponding to the intervals between the projecting roots; and the bark, which is very rough and irregular, forms here and there large plates intersected with fibres, or cut across with thick stiff ridges, giving it a singular and intricate appearance.

The aspen (*Populus tremula*) is distinguished from the other spreading poplars by its bold and firm character. The stem, rough near the foot, but smooth and whitish in the upper part, rises to a considerable height, with very little diminution of its diameter, and branches off, chiefly at the top, with short crooked limbs. They spread out stiffly, bearing a massive foliage which becomes pendulous towards the edges. Thus the tree acquires a somewhat flattened or tabular head, which falls abruptly on the sides. The clump of aspens on the banks of the Thames, near Orleans House, at Twickenham, to which these remarks chiefly apply, has peculiarities seldom seen in other trees clustered together, causing it to possess a very rare degree of picturesque beauty.

Of the various kinds of poplars, the abele tree (*P. alba*) shews the most decided white on the under part of the leaf. In the white poplar (*P. canescens*) the hoariness of the leaf is less harshly contrasted than in the abele tree: the masses of foliage are more dense than in the other spreading poplars, and form somewhat elongated clusters, which, as the wind lifts up the extremities of the branches and shews the downy side of the leaf, become well detached from each other with a light and picturesque effect. The stem furnishes a large cluster of branches.

The black poplar is chiefly remarkable for its thin loose foliage, and the length of its limbs. There are splendid specimens of it and of the *P. monilifera*, which it much resembles, in Sion Gardens.

The Birch.—The birch generally presents a rounded head of foliage, so lightly scattered as to shew the sky through it in almost every part: the colour is dull and brownish, and contrasts with the whiteness of the upper part of the stem, which exceeds that of any other tree. Towards the foot it becomes rough and chequered with brown: the branches stiff, and white near the trunk, bend towards the extremities, and the leaves hang in streams exceedingly light: thus the tree is full of picturesque contrasts. Its defect is the dotted appearance of the leaves, resulting from their smallness, their rounded shape, and the intervals which separate them from each other. Some of the varieties are pendulous, like the weeping willow, and much more picturesque, the looseness of the foliage being much better adapted to the light character of the tree, than the compact and matted spray of the weeping willow.

The Willows.—Although Loudon does not assign to the willow that damp situation for which it is generally supposed to have a particular fondness, its appearance is generally so much connected with that of water, that art has often adopted it as a sign wherewith to mark the course of a stream or river, or a canal, where these objects are themselves concealed from view. The willow presents, in its different forms, the very extremes of elegance and grotesqueness; and it is somewhat remarkable, that, of these various forms, the grotesque one is that which is most frequently introduced into pictures. The old, stumpy, and hollow willow, with its thin and shagged head, finds, notwithstanding its shattered condition, an honoured place in the foreground, and doubtless owes its usefulness in the composition to those characteristic peculiarities which, in some measure, constitute its ugliness, but distinguish it, in a striking manner, from every other tree; thus proving, that character may, where variety is wanting, become preferable to elegance itself. Those willows which are allowed to run up with that rapid lightness of growth which is peculiar to them, seem to present no other defect, as a light and elegant tree, than too much straightness in the branches, and a loose irregularity in the arrangement of the leaves. Some of the species, indeed, do not want a degree of massing proportionate to the lightness of the foliage. They form trees of a very considerable magnitude, hung over with clusters of a light silvery colour. The following will give an idea of the size to which the willow sometimes attains:—At Bury St. Edmund's there is a willow measuring a height of seventy-five feet, and the girt of its trunk is eighteen feet six inches, and its branches extend over a space measuring 204 feet in circumference. The trunk of one at Hopetoun House, near Edinburgh, has a diameter of four feet nine inches; its height is seventy feet, and the diameter of its head sixty-five feet.*

There are willows in the vicinity of London whose dimensions appear to be very little inferior to those above given. There is one in Moulsey Park, the property of J. Todd, Esq., measuring sixteen feet round the trunk, which is covered with ivy to the summit: it has now but few branches remaining, whose light foliage contrasts with the dark mass of ivy which envelopes the stem. The head, if proportionate to the other dimensions of the tree, would be enormous.

The Huntingdon willow affords the best specimens that I have seen of lightness and elegance; its leaf is very white and glossy and its long flexible branches run up very gradually tapering, till they disappear to the eye amongst the light silvery foliage. It reminds you of the trees introduced by Claude to soften the passage from the darker to the lighter portions of his pictures. The bark of the willow, in general, is rough and fibrous; the foliage of some species is of a comparatively warm green. The weeping willow (*Salix babylonica*), when in full leaf, has rather a dense head of foliage, of a light warm or yellowish green, catching a good deal of light on its flattened summit. The branches diverge in all directions; they are sinuous and very tapering; the stem has generally a greenish colour.

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* Loudon, Statistics of the Willow.

However pleasing in nature, the weeping willow seldom looks well in the picture. The difficulties of execution are very great. Owing to the closeness of the leaves, the hanging masses look rather stiff in nature, and still more so, in the drawing, as there is no possibility of indicating the cause of their hanging down; and the least deviation from the perpendicular makes it appear as if their streaming form was the result rather of stiffness than of pliancy. These difficulties would probably be got over more easily, by putting in the foliage very sparingly, as in old decayed trees.

The Alder.—The white alder may almost be coupled, as to its picturesque characters, with some kinds of poplar. It is very common in the Alps, and its description will find its place in Alpine vegetation. The black alder (*Alnus glutinosa*) is most common in England. Its appearance, especially when full grown, differs very much from that of the white alder. I have seen it in fertile situations run up with a straight stick to a height of fifty or sixty feet; or forming a spreading head with a short and branching stem. The irregular massing of its foliage appears, at a distance, not unlike that of the oak.

The Thorn is too stumpy, and its head too spherical, to be of much use to the landscape, but its contorted and interwoven branches might supply useful forms of ramification for study. They suggest combinations which could not otherwise be thought of. In some one of its fanciful eccentricities, the tree might, perhaps, be introduced as a whole, but its compact and even head of foliage should be avoided. I have seen one completely dressed in the foliage of the ivy, which it wore as a wig: the trunk of the ivy exceeded in thickness that of the thorn, and had effectually choked it by the strenuous grasp of its entwined arms.

The Acacia. — In England, as in every other country where a taste for landscape scenery prevails, the acacia is not merely confined to the garden, but mingles in the ornamental scenery of the country. Although the foliage is more light and delicate than that of the ash, it is contrasted with a degree of stiffness in the skeleton of the tree, which the ash is far from possessing. The branches are horizontal, crooked, apparently stiff and brittle; and the bark is exceedingly rough.

The laburnum and minor decorative shrubs which often appear in the scene enriched by culture, are too showy to be introduced into paintings, unless at such distances as afford an imperfect idea only of what they are. The whole representation lies, therefore, in a few touches, indicating their colour, chiefly that of their foliage. The circumstances under which their gaudy flowers may be displayed in painting, are very limited; the scene must be a very artificial one to suffer this, and the portrait very close to the reality. How different is the case with respect to the ivy, whose dense and luxuriant masses of a deep green are scarcely to be dispensed with as a covering to the nakedness of extended walls, or as an ornament to the ruin. Early in autumn its numerous bunches of a pearly white break the monotony of its sable colour, and have a pleasing, if not an enlivening influence.

Flowers on trees and hedges are better employed as a means of characterizing than of embellishing. The elder acquires much additional character and picturesqueness when patched with its large white flower: the briar, without a rosebud here and there, is scarcely recognised amongst the other minute and irregular brambles which surround it; whilst the clematis, the convolvulus, and the far-spreading bryony, which give such variety to the hedges, by their diversity of growth, vary it tenfold, when, to the form of their leaf, is added their peculiar and characteristic flower.

The various plants and bushes, whether bearing fruit, seed, or blossom, are little interesting from their elegance or beauty, but they call to mind, in expressive language, familiar scenes. The fern tells us of the heath, the thistle and burdock of the dusty roadside, and the night-shade of the retired lane. Thus the frequented walk or favourite retreat is impressed upon us in its most striking and homely features; and that which might appear bad taste in the picture descriptive of the country at large, is in its proper and becoming place in the local and confined landscape. [*See foreground.*]

Influence of the Seasons on the appearance of the Foliage.—The changes which take place in the appearance and relative colour of different trees, are not confined to the two most interesting periods, when the foliage breaks out in spring, and when it fades in autumn; but it is progressive to a certain extent, during the whole of summer.

The fulness of the foliage appears gradually to increase till the height of the season; and before the wane of the year begins, the scales are turned, and there appears to be a gradual thinning of the foliage, until the frost and first winds of autumn produce sudden havock.

In the beginning of summer, the colour of the foliage contrasts in a different manner to what it does at a later period. The trees, whose leaves, like those of the oak, are late developed, are of a more lively green than those which have had their clothing for a longer period; they become, however, the darkest in the after season. Owing to this more or less tardy breaking out of the leaves, the vegetation presents at this early period of the year a pleasing variety of tints; rather too gay, however, for that degree of sensitiveness, which it is so necessary that taste should maintain with respect to what is becoming in art. The tints of July are, upon the whole, preferable; although its more sober colours are here and there disagreeably interrupted by the young shoots, patching the extremities of the branches of some of the trees, particularly of the oak and elm, with a bright green, not at all in harmony with the general masses.

The horse-chestnut is one of the first to mark, by its change of colour, the decline of the year. Its tints are most rich and varied, sometimes limited to one part of the tree without reference to exposure to sun or weather, sometimes gilding at once the entire head of foliage; whilst a neighbouring tree still shews its deep green, or mingles pink and red. The autumnal tints of the beech, which appear later, are less brilliant, but exceedingly harmonious, and very effective when introduced into a picture. The tree is generally rather bronzed than gilt. Rich crimson colours appear in the maple, and I believe occasionally in the sycamore, though I have seen one entirely yellow. The early stripped lime-tree gains little by its autumnal clothing, the yellow of its leaves is too pale and uniform. The appearance of the birch is greatly preferable; although the blighted and the withering leaves being disseminated irregularly throughout the tree, give it a very chequered appearance. The general tint approaches to a warm brown.

Gilpin justly remarks, how much the ash falls off from its vernal elegance and beauty in the wane of the year; its sickly yellow leaves, clinging here and there to the naked branches, or intermingled with dried bunches of seed-pods, are anything but attractive.

The elm with its grey and yellowish masses of half-shrivelled leaves, and the oak, preserving its brown tints almost to the threshold of winter, become interesting in proportion to the barrenness of the surrounding trees. The thorn has just lost the scanty remnant of its foliage, tinged with pink; the spreading poplar has been stripped of its pale yellow leaves; and the Lombardy poplar, though less quick to shed its foliage, has also become bare; but the delicate willow, surrounded by snow and frost, still weeps the general gloom of Nature.

Firs.—Whether from confinement, mutilation, or the unsuitableness of the soil, the cultivated firs and pines shew a much greater diversity in the characters of the individual trees, than those which grow wild, in situations, as it were, of their own choice. Thus the characters of each species appear in a great measure obliterated to the superficial glance. However unfavourable for identification, this falling off from the true type of the tree is a great gain in point of picturesque beauty; and, generally speaking, the cultivated firs present a greater variety, and mingle better with other kinds of trees, than those which inhabit their native soil.

Some of the *Abies* or spruce-fir kind lose their lower branches with age, whereas the pendant boughs of the sapling reach down to the ground. I have seen them acquire fresh vigour from the imbibed moisture, and spread to a considerable distance from the tree: at other times the head of the tree assumes the shape of a screw, from the alternate projection of the layers on either side. Singular and grotesque forms not unfrequently contrast with the beauty and delicacy of some rarer species nursed with particular care, or of the same kind in a more youthful state. A young Weymouth fir in Whitton Park would not easily be recognised to be the sister of a giant tree standing in the same grounds. The former is remarkable for the abundance and delicate colour of its foliage, and forms an uninterrupted cone of verdure: the latter, in a more advanced age, has a single whorl of immense branches entirely bare: they rise nearly from the foot, to a height equal to that of the central stem, which is reduced to the dimensions of a mere limb. Deep cavities under the socket of each branch have a very peculiar effect.

The *Pinus Pinaster*, or cluster-pine, is one of the most handsome of its class: when thriving, it lifts up proudly its chandelier-like branches, covered with bunches of long leaves clustering round the shoots. The catkins, of a reddish yellow, are very conspicuous in the early part of the year, and the cones encircle the smaller branches in a complete cluster. Hence the name of the tree. It seems often to grow in an inclined position. The colour of the foliage is somewhat light and ashy.

The *Pinus Tæda* is a very remarkable and picturesque tree. The specimens in Sion Park have branches long and tortuous, some of which run out to a great distance, at a few feet from the ground. Large bunches of leaves are disseminated over the tree, and render its appearance singular and fanciful. The species the most commonly cultivated are the Scotch pine, often seen in clumps, and the spruce fir, whose branches seem to be more long and pendulous than they are in the Alps. [For these, and for the Silver Fir, see *Alpine Vegetation*, page 132.]

For the Cedar, I refer to Gilpin's classical and elegant description, in the first volume of his "*Forest Scenery*," page 76; and shall only add, that its majestic character requires that it should not be dealt with on every occasion. Its dark horizontal planes, rising tier above tier, each seeming to mark with its sharp apex some point of the horizon, render its appearance at once fantastic and solemn, and suggest to the mind a train of ideas disconnected with the more cheerful tenour of embellished scenery. The stem of the cedar shews very little of its roots, and has no expansion of its foot which might appear adequate to the support of its immense burden. Another peculiarity in the cedar is, that its lesser branches sometimes strike out horizontally from the larger limbs which rise up in a parallel cluster, thus giving to the tree two distinct sets of branches.

The Yew, in its general outline, presents considerable analogy with the cedar; but in point of size, character, and effect, its inferiority is striking. Its numerous and tufted layers of branches, of a sable hue, befit it for a screen, or a background for lighter trees. [For the Cypress, see *Vegetation of Southern Europe*, page 152.]

REMARKS ON ALPINE VEGETATION.

Woods appear with peculiar advantage on the slopes of mountains ; barren rocks are picturesque only when seen in the distance, or when contrasted ed with the softer scenery of the woodlands. In tasteful compositions, the entire outline of a rock is seldom traced ; its base is embosomed in trees, and frequently the summit also is wreathed in foliage. The nakedness of rocks is more especially unpicturesque, when their gradual ascent and gentle outline seem to promise fertility. This is the case with many of the eminences situated in meridian climates, whose barrenness is owing to the nature of the soil and climate, not to the ruggedness of the mountain. In the parched climate of Greece, the shrubs form but a scanty covering to the mountains, which rise with a very gradual ascent ; whereas, in the showery climate of the Alps, the firs are seen to climb up the slopes, having an angle of near 70°, and, when less inclined, they are often thickly wooded.

Firs common in the Alps.—The Fir, more than any other tree, associates with mountainous situations and the Alpine climate. The characters of its various species are much less marked than those of deciduous trees. That known in Switzerland as the Red fir, the *Pinus Abies*, corresponding to the English spruce fir, constitutes the bulk of the Alpine forests. The Silver fir, there called the white fir, is scantily intermingled. But these two species present so little difference in their general character, that they are not easily distinguishable from each other, unless by a practised eye. The difference in the colour of the bark is first noticed; it is paler in the white fir than in the red. In the latter, it is a warm brown, varying in shade; the bark is also more free from moss, which, with the exception of the bearded lichen, prevalent at an elevation of three or four thousand feet, attacks only the dead and withered branches. The artist, however, finds ample room for variety in the differences of growth, arising from the nature of the soil, situation, etc. In this respect, the mountain fir exhibits, under various circumstances, the most dissimilar characters. At times the branches are short, growing at intervals, and in clusters. In some, the stems are bare nearly to the summit, which is tufted; in other trees, the branches begin at from five to ten feet from the ground, and are so thickly set as almost entirely to hide the trunk, from which they generally start nearly at right angles, forming a gentle curve, and rising a little at their extremity: they become rather more raised towards the summit of the tree. Those which grow alone on the Alpine pastures have long drooping boughs, swelling towards the foot of the tree in the shape of a hay-cock. This extension of the branches seems to be owing principally to the snow, which bends them to the ground. The character of the fir is frequently altered by the severity of the Alpine climate, the leading shoot being either killed by the frost, or broken down by the weight of the snow. In this manner are produced those singular and deformed pines of the Alps, whose giant limbs, branching out at a few feet from the ground, reassume with a sudden bend the vertical direction, and present a cluster of large trees out of one root.

The withering effects of the Alpine climate increase rapidly with the elevation. The summit of the tree is first blasted by the gales: some are bare towards the wind only, others have their trunks and branches entirely dried, or seemingly preserved in a half-decayed state, by the intensity of the cold.

The aspect of firs, taken as a mass, is dark and gloomy, and they shew forth the light foliage of the deciduous trees, particularly of the beech.

There are, however, a great many differences of colour amongst firs of different growths and ages. The shoots of the young fir, particularly those of the red species, are of a lively green, and contrast in various shades with the dull and sable colours of the older trees.

The *Pinus sylvestris*, analogous to the Scotch pine, presents characters very distinct from those of the above mentioned species. It is less erect, and not unfrequently bent. The bark, marked with large scales, is grey towards the bottom, and reddish from about half-way upwards, where it is smoother. The stem terminates rather abruptly. The branches are much more extended than those of the *Pinus Abies*, and when the tree grows in clumps, scarcely begin at less than half its height. The foliage grows chiefly on the extremities of the boughs in knotted clusters, and forms an umbella at the summit of the tree: and its ashy colour contrasts with the warm tints of the other firs. The tips appear somewhat silvery when lighted by the sun. The *Pinus sylvestris* attains large proportions in the forests of the plains and valleys; but its most picturesque situation is on sunny rocks, where it assumes a crooked, irregular, and sometimes dwarfish appearance.

The Siberian pine, *Pinus Cembra*, has some general resemblance to the *Pinus sylvestris.* Its bunching leaves shoot upwards, and cluster at the extremities of the branches. These, however, are less tortuous, but more numerous, more equally set, and give to the tree a less irregular form. It is less common than the other kinds of firs, and from the frequent appearance of old stumps, seems to be in some parts scarcer than it was formerly. In the Grisons, however, the Siberian pine is still numerous, and attains a great elevation on the mountains.

In bleak mountain situations the timber trees are often replaced by low spreading bushes. The dwarf pine, *Pinus Pumilio,* bears a far greater resemblance to the latter than to the noble tribe to which it belongs. In steep slopes, with a loose soil, its long and flexible branches creep down the mountain side, resembling the roots of an old tree washed out of the earth: they afterwards shoot up with a curve, and are tipped with bushy bunches of needles.

The Rhododendron exceeds, in elevation, the limits of the firs; but, however grateful its flower on these desolate heights, its characters, like those of the whortleberry, are too minute to enter into the composition of a scene taken from nature. This latter thrives on the vegetable soil formed by the trunks of trees, blown down or felled by the peasants, and often left to rot in heaps on the spot where they grew. But one of the most interesting of the Alpine shrubs, with respect to its influence on the scene, is the Green alder, *Alnus viridis*, which, from its lively green, sometimes covering entire slopes, gives a new and almost smiling feature to places otherwise desolate.

Deciduous Trees.—The deciduous trees most commonly met with in Alpine districts are the larch, the beech, the sycamore, the birch, and the mountain-ash on the slopes; and the walnut, the white alder, the mountain-elm, the lime, and the willow in the valleys.

The Larch is a frequent inhabitant of the higher Alpine regions. Its stem, thick at the base, decreases more rapidly than that of the fir; the bark is rougher and much covered with grey moss. The branches, long and slender, are sometimes forked and irregular, but the spray is rather pendent; and the trunk appears almost everywhere through the scanty foliage.

Larch trees do not smother the herbage over which they grow; but owing to the fertilizing nature of their deciduous leaves, the pastures spread green and fresh amongst the forests of larch. This is particularly apparent on the Alpine slopes of Upper Engadina, where the pastures extend up the mountains, uninterrupted by the woods. They abound also, mingled with firs, in other parts of the Grisons, and are very abundant in the upper valley of the Rhône.

The Beech constitutes large forests on the inferior slopes of the Alps. In Styria, it generally extends from the foot of the mountain to an elevation of three or four thousand feet, becoming more and more intermingled with firs as the elevation increases. Its stem is generally straight and erect in the Alpine forests, and in those of Upper Austria, it may be seen to present a cylindrical shaft reaching to an elevation of a hundred feet.

The Sycamore of the Alps has a light bark, slightly chequered with yellow in the old tree, with thin scales and abundance of brown moss. Its long and ponderous branches are thrown in the most picturesque manner. The foliage, of a dark warm green, is massive but not heavy, with leaves well defined. The general form is lofty and full, but not very spreading. On the Alpine declivities, it attains an enormous size, and forms, as a tree, a noble object: but its appearance is much influenced by situation; and I remarked one in a very exposed spot in the pass of the Radstadter Tauern, near Salzburg, with its branches twisted and its diminished leaves knotted together in a very peculiar manner. The platanus-like sycamore is common on the lower slopes of the mountains about Ischel. The leaves, which are there spotted, are more cut and sharper at the points than those of the more common species, *A. Pseudo-platanus.* The bark presents a closer tissue, and the growth of the tree is more regular.

In the Alps of Styria, the ash is scarcely ever seen otherwise than as a pollard; the shapes which it thus assumes are grotesque and inelegant, and in complete opposition to the character of the foliage.

The Walnut luxuriates in some of the Swiss valleys, where it attains an enormous size. The largest of those bordering the walks in the valley of Interlaken measures nineteen feet in circumference. The walnut also climbs the inferior slopes of the mountains, and sometimes hangs over the boulders which have been precipitated from their summit. It grows alone, or in groups. Its general form is rounded and swelling, and it presents broad masses of foliage of a warm colour, and loosely mingled together. The branches, which separate near the ground, are long, and shew a good deal through the foliage, which presents an easy touch for imitation, and a soft harmonious effect.

The White alder flourishes on the banks of streams and torrents, in the Swiss and Styrian Alps. In the latter, there are extensive groves of of it, filling up the hollows of the valleys. The trunk is sometimes beautifully speckled with white and brown, but the usual colour is a light drab. In these districts, the alder has thick but light clusters of foliage, with thin and flexible branches. It grows generally in clumps and clusters, sometimes to a height of forty or fifty feet. The black alder is more thick and bushy. This is the kind common in England, although in some cases the general resemblance is very slight. It has a straighter stem and stiffer branches than the white alder.

The white beam-tree, *Pyrus aria,* is seen to hang from the brow of a rock or from the bank which overhangs the lake or stream. It little exceeds the dimensions of a bush, and leans over the steep declivities. Its branches, which are long, sinuous, and thick, have but a sprinkling of large leaves, white underneath, which, when raised by the wind, contrast with the dark colour of the wood.

A small bushy willow grows in a barren and rocky soil, and in the dry and stony beds of torrents, a remarkable specimen of delicate vegetation in a most arid spot.

The Hazel-nut abounds in the hedges of the Alpine districts, or forms bushy clumps in the skirts of the woods.

Fruit-Trees.—The abundance of fruit-trees in most continental countries, and the luxuriance of their growth, render them the almost necessary accompaniment of village and rural scenery. In France and Germany, they not unfrequently line the roads and footpaths; and in the valleys of the Alps, they appear in profusion in the village lanes, and squares, or in orchards so slightly enclosed as to present rather the appearance of a public grove than of a private garden. They often rise considerably above the roofs of the cottages, and the neat wooden houses are often embosomed in thick foliage. The growth of the fruit-tree is in general very tortuous and irregular; and it would seem that the labour and attention bestowed on the improvement of its produce deform the tree, subverting its primitive habits and character.

The Cherry-tree ranks amongst the loftiest in the valleys of Switzerland. The trunk of one near Interlaken measures two or three yards in circumference, and its height is proportionate.

Plantations of fruit-trees present a thick and confused assemblage of leaves, rather than regular masses of foliage. Numerous sprigs and branches intersect each other with abrupt and singular contortions, and the grotesque effect is often increased by an abundance of dry wood. The trunks have a rough and darkish appearance. The distinctive characters of the bark need scarcely be noticed; namely, the large and rough scales of the apple, the closer and more regular texture of the pear, and the horizontal layers of a white pellicle which binds the upper stem of the cherry-tree, and partly envelopes a rough and scaly bark towards the roots.

The tints of the foliage are subdued and vary little in the different kinds of trees, unless in the autumn, when the grove of fruit-trees is chequered with various tints, amongst which, the deep crimson of the cherry is very conspicuous.

Styrian Forests.—The forests of Styria and of the salt districts, Salzkammergut, more extended, and presenting perhaps, less variety of trees than those of Switzerland, have a greater degree of gloom. It is mitigated, in the Swiss forests, by the higher cultivation in the valleys and by the various signs of industry, which, with a numerous population, often extend to the verge of the icy regions. In

Switzerland, the grandeur of the distant scene is combined with the happy social character of the nearer one, and the Fleming-like finish of every detail. The want of those minute particularities in Styria and Tyrol renders the scenery of these countries more applicable to general composition, excepting where, here and there, the singular and sometimes artful contrivances of the woodman to convey the felled timbers across the mountains, and even along the precipices, afford incidents of a local character. It must, however, be acknowledged, that where the dark fir-woods are interrupted by clearings on the sides and tops of the mountains, whence fuel is supplied to the salt establishments, the effect is less pleasing than in the Swiss Alps, where the woods are interrupted by green pastures and by impending rocks; their brow generally fringed with large firs, appearing like a dwarf fence from below.

Vegetation of Southern Europe.—In Carinthia, the direction of the principal valleys is east and west, and the transition from a northern to a southerly vegetation is more gradual than in the western Alps; being marked by successive stages as you pass from one valley into another. Fruit-trees abound on the slopes of the mountains, and the walnut thrives to a considerable height. Tall and remarkably slender firs grow very close together, and give a peculiar character to the forests.

On crossing the passes which lead from Switzerland to Italy, the transition is more abrupt and striking; forests of wild chestnut either replace the fir on the sides of the mountains, or give interest to the nearer scene by the fine massing of their foliage, and the variety of their growth. Four distinct characters may be observed. It is in some cases a low tree, with a rounded and spreading head; somewhat resembling a large and full-grown apple-tree. Elsewhere, the bole has large dimensions, but it bears very diminutive branches, the tree having been reduced either by lopping, or by the decay of the wood, to a mere trunk without limbs; sometimes, however, grotesquely irregular in shape, and not unpicturesque. In some sheltered and favoured situations of the valleys, the Spanish chestnut rises to a lofty and spreading tree, being a most handsome specimen of the vegetation of those parts; whilst on the rocky and precipitous slopes of the mountains, it either becomes the low and spreading tree before mentioned, or assumes the character of a mere bush. It does not, however, constitute alone the hanging woods; but it is intermingled with a variety of shrubs, such as the nut, the thorn, the briar, the sloe, and other kinds of bramble, which cling to the ledges and crevices, and nowhere leave large surfaces of rock entirely denuded.*

The chief ornament of the valleys is the Vine, supported by trellis-work, and sometimes connecting two portions of a building with an arch of verdure, or hanging in festoons from the mulberry-tree, with corn and maize ripening beneath. It presents many incidents for the pencil, and at once marks the country.

The Orange and Lemon may occasionally be seen adorning the gardens on the banks of some of the sub-alpine lakes, but they are scarce, and do not constitute one of the features of the country; nor does the olive-tree seem at home till the principal chain of the Apennines has been crossed, when, descending towards the valley of the Arno, it appears in sufficient abundance to recall to the mind every classical association connected with it.

Penetrating southwards by Perugia and Foligno, amongst the Apennines, we find the vegetation on the slopes of the mountains more disseminated than on those of the Alps. There are nowhere those extensive and compact forests of beech and fir which appear in Switzerland and Styria. Evergreen shrubs are strewed over the wilder parts; olives cover the inferior slopes; and the plains of Tuscany, and of part of Romagna, are planted with mulberry-trees, whose branches, spreading like an inverted cone, are interwoven with the vine. Sir T. D. Lauder, however, describes a beech forest on the summit of the Valombrosan Apennines, affording that rich luxuriance and delicate finish which one would only expect from the care and nursing bestowed on the pleasure-garden.

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* The data contained in this paragraph, and some of those which precede it, are taken, chiefly, from observations made by my brother in a tour through Switzerland, in 1845.

In the Roman Campagna, and still more in the environs of Naples, the evergreen-oak and other trees of this class not only form, as in Florence, the avenues of the gardens and public walks, but are often seen by the roadside, and mingle even with wild mountain scenery. But the more extensive forests, called *macchie*, are composed chiefly of deciduous trees.

The foliage of the evergreen-oak is dark; the sprigs firm and bushy; and the leaf small. The branches are tortuous, and irregular; the bark, of a darkish brown, is furrowed like that of the common oak, but with the ridges more close and regular. Some of them bear marks of the pruning-hook, or shoot up in long, slender boughs to a considerable height. Their inferior limbs are comparatively thick and knotty. This evergreen forms, in its different varieties, the shady ornaments of the walks, where it mingles with the laurel. Its thick and tufted foliage, and rather diminutive boughs, render it particularly adapted to this office. But the most characteristic tree of the Italian parks is the Stone-pine, *Pinus pinea.* It frequently reaches a height of from seventy to eighty feet. Its form unites boldness and elegance; the branches start from the trunk at about two-thirds of its height, or even nearer to the head; they subdivide into numerous ramifications, bearing a compact umbella of dark foliage, slightly convex. In the full-grown tree it is thin and spreading, but it is rounder in the young one. Where several grow together some are erect, while others incline gracefully on one side. The trunk, though naked, and rough with large angular scales, is not offensively hard; but, in addition to a slight but varied curve, it derives picturesqueness from the knots of inferior branches either decayed or lopped off. A grove, or large clump of these trees, is particularly attractive at a distance; and the shelter they afford, in the voluptuous climate of Italy, reminds you of a canopy raised high overhead, because all beneath is enchantment. The stone-pine appears to be, even in Italy, chiefly a tree of culture. A similar tree, but smaller, is seen to rise from the underwood of evergreens which cover the lower Apennines; but I am not aware that it is the same kind of pine. The tapering firs appear seldom in Southern Italy.

Some of the olive-groves in the environs of Rome exhibit fine old trees; that, in particular, on the ascent to Tivoli, has quite a venerable character, the trunks being singularly torn and shattered by age: many of them are entirely hollow and perforated; others are divided into several parts down to the ground, connected together, here and there, by a few shreds of bark; whilst others again, clinging to the soil with the points of their roots, are raised in the air, like tripods. In Greece and Turkey, the decline of the olive is likewise marked by peculiar characters: the bole having a porous appearance, from the number of holes and depressions with which it is covered.

The young and thriving olive has a general resemblance to the willow, the form and the colour of the leaf being nearly the same; and though perhaps somewhat browner on the upper surface, it has the same silvery appearance in the sun. The foliage is rather more scattered, the branches irregular, the bark fibrous, and of a warm grey.

On the coast of Naples, the orange and lemon-trees chiefly attract the eye from their abundance, as well as from the open prospect which is obtained of them as they hang from the slopes of the hills. These two trees generally grow together in clumps and groves, little mixed with trees of other kinds. The orange is distinguished from the lemon by the darker tint of its foliage, and by its head inclining rather more to the spherical form. The lemon-tree is more irregular in its growth; but it differs from the common trees of the orchard in the smoothness and clearness of its bark, and the warm brilliancy of its foliage. On the coast of Amalfi, groves of mingled orange and lemon fill up the small platforms and vacuities of wild and precipitous rocks. The olive also flourishes and mingles its ashy hues with the dark and pinnated foliage of the Carob-tree, of a picturesque and irregular growth, and which appears to thrive in barren situations.

In the Campagna of Naples, the vine climbs up the poplar to a height of forty or fifty feet, from which it hangs in festoons. The most shady walks are those over which the evergreens bend their richly-furnished branches; and the breeze which sweeps freely the more bleak and open sides of the hill, wafts the perfume of the myrtle and other odoriferous shrubs.

The interval of sea between the gulf of Naples and the coast of Sicily produces a marked change in the vegetation; less from the addition of plants and trees foreign to Italy, than on account of the far greater abundance of those which are peculiar to southern climates. In the neighbourhood of Messina, the prickly pear, *Cactus opuntia*, is cultivated to a great extent; it forms hedge-rows, extending along the slopes and reaching to their summit, having a very singular appearance. There are two species, one is of a slaty green, of a large size: the other smaller, is of a yellow green, very prickly: these, intermingled with aloes, and often with tufts of cane, growing together in luxuriant profusion, give to the lanes a peculiar and interesting character.

In Malta, the cactuses grow almost to the size of a tree, and form dwarf shrubberies. The leaf attains the length of a foot or more; the stem, formed as it were by a succession of leaves which unite into one mass, is half a foot thick, and very tortuous, and the entire plant reaches to eight or ten feet.

To change our course, we will proceed eastward down the Danube. The leading feature of the vegetation there, consists in forests of the poplar, alder, or willow, skirting the banks of the river, and hiding entirely the country beyond, excepting where mountains rise in the distance. There are parts between Ratisbonne and Passau, where the dark fir mingles with this light kind of foliage; but lower down, especially below Linz, the screens of verdure which flank the river on either side, sometimes for miles uninterruptedly, are formed entirely of trees with a clear light foliage; they rise from the very edge of the water, often appearing to shoot out of its surface. Elsewhere, the lower part of the trees is hidden behind banks, and they have the appearance of growing upon a soil, the level of which is lower than that of the river. Numerous islands which divide it into several streams, present these curtains of wood under different forms and at various distances. This extends considerably below Vienna. The vegetation of the banks then becomes of subordinate interest, till the mountains of Bulgaria, which enclose the Danube, shew, on their steep and bold declivities, a luxuriant vegetation. It is the luxuriance of a southerly climate, and not that of the species. The timbers are not large, neither are there any of those extensive forests of firs which cover the Austrian Alps, and extend to the banks of the Danube in its upper course. But the very bushes, spreading their broad leaves in rich exuberance, bear marks of an invigorating sun. The vine here grows wild, and forms, at the mouth of Veterani's cave, between Drenkova and Orsova, fine irregular tresses of verdure growing amongst the underwood, and clinging to the rocks, and branches of trees.

At Constantinople, the size and entireness of the leaf is a point that at once catches the eye. In every part, the trees shew a clearer and more perfect growth than in less southern climates; the trunks are free from moss, the head is not lofty, but rounded and far spreading. In the immediate neighbourhood of the city there are beautiful specimens of the plane and ash, with trunks several feet in circumference, and long branches separating near the ground. A spreading plane in the court of the Sultan's seraglio measures nearly seven span of the arms round the trunk, but it divides so near the ground that it resembles a clump.

The appearance of the Turkish cemeteries by no means comes up to those ideas of ornamental perfection which one is too disposed to conceive of everything Eastern, and more especially of gardens and sacred groves. The cypresses, which raise by thousands their dark and spiry heads, form one dull mass, unenlivened by any other kind of tree, and almost, indeed, by any decorative monument; for the great majority of the tombs consist of a mound of earth heaped over the grave, with a stone either placed at the head, or lying neglected on the ground.

The cypress is more compact, stiff, and conical than the poplar. When perfect, it tapers with great regularity, beginning low down, and terminating in a sharp and delicate point. The summit is, however, sometimes jagged and forked. There is, indeed, considerable irregularity in the appearance of a group of cypresses: some have diverging branches like the yew; others, particularly the old trees, have but a scanty cluster of foliage at the top, the part below presenting a mass of bare and matted branches. The bark is dark and fibrous. The foliage has a very close texture, which gives firmness and precision to the outline of the tree.

In the open and well-cultivated valley of Smyrna, the fig and the olive are most conspicuous; a small fir, resembling the stone pine, varies the scene, whilst a spreading sycamore shelters the village market-place. Great barrenness prevails on the heights, but the channels of the streams teem with a luxuriant and perfumed vegetation of evergreens. The fig attains the size of an ordinary fruit-tree in England; the stem sometimes exceeds a foot in diameter, and its interwoven branches hang to the ground.

Description paints with the liveliest colours the vegetation of the island of Scio; but the only specimen which I have seen, of the vegetation of the islands of the Greek Archipelago, is that of Syra; it presents a remarkable and very picturesque mixture of a profuse vegetation, bare rocks, and naked walls, with ripening gourds hanging over them. Diminutive gardens are terraced up with great industry in the most wild and unpromising situations. The pomegranate mingles its bright green with the more dingy foliage of the fig or mulberry-tree, but the vine grows chiefly low and unsupported. A palm-tree occasionally makes its appearance in a conspicuous and fertile situation; it stands alone, and would seem to be a stranger, even in these latitudes, were its appearance less vigorous and flourishing. It is a most handsome tree, growing to a height of thirty-five or forty feet, where it spreads into a large cluster of feathery leaves. The stem, about eighteen inches in diameter, thickens towards the top, and becomes rough and shaggy with the stumps of the decayed petioles, whose horizontal marks shew all the way down the stem.

The vegetation of a portion of the Morea, between the gulfs of Egina and Nauplia, is composed chiefly of small evergreens; they form, down to the ground, a thick matted foliage, impenetrable to the eye, and reflecting the sun's rays from the glossy surface of the leaves. On the sandy flats it forms low spreading patches of a beautiful tufted green, swelling like velvet cushions from the plain. The influence of the torrents, combined with a hot and cloudless atmosphere, is most energetic and apparent on the scented and flowery tribes. The sweet scent of the oleander is breathed from afar, before its beautifully pink flower delights the eye; and the thick clustering flowers which mingle on the arbutus, with the ripening fruit, testify to the perpetuity of spring.

On the slopes of the mountains the trees grow isolated, and nowhere present a continuous thicket. This appearance, though not picturesque, is very characteristic. With the exception of the fig-tree and some venerable groves of olive, some of whose trunks are a yard in diameter, the country about Athens is almost without wood. All ancient trees have disappeared with the nations which have been swept from the land. What now remains seems to be a youthful vegetation, raised by the influence of this most productive climate. The slopes are studded with evergreen shrubs, or carpeted with heaths, with colours bright and varied. The oak is here reduced to a very dwarf species, scarcely two or three feet in height; but the pine is sometimes full grown, not, however, compared with those of Italy, which it otherwise resembles.

The mountains are in general remarkable for their complete barrenness. To the north of the gulf of Lepanto, the scattered trees appear, from a distance, like dots on the rocks ; but the valley of Delphi is the only one where I have seen the vegetation assume an abundant and shady character, resembling that which ornaments the valleys in the more northern parts of Europe.

BUILDINGS.

The introduction of buildings into a landscape presents the immediate advantage of breaking the soft, rounded, and somewhat monotonous forms of vegetation with an outline bold and angular, and the similarity of its tints with a different class of colours, with brilliant lights and marked shadows. In short, the eye, tired with surveying objects comparatively indeterminate, and little detached from each other, gladly meets that which presents itself with an unquestionable form, and in a decided and prominent manner. The sentiment and expression of the landscape, but more particularly of the cultivated and embellished one, likewise require the introduction of habitations. It is a feeling too flattering, that the scene owes its smiles, in a great measure, to the skill and attention of man, that we should not expect to discover his dwelling-place amongst the other pleasing objects raised by his care.

Before introducing a building into a landscape, inquiry should be made whether its style is in itself agreeable to the eye, and whether its appearance harmonizes well with the character of the scene. The dwellings of the peasantry, whether the walls be of stone, brick, wood, or clay; whether thatched, covered with tiles, or with rushes; are universally regarded as picturesque objects, and, more than any other kind of building, become the fit ornament of the rural scene, where they may always be introduced with safety and propriety; sheltered as they are from critical observation and envy by their humbleness. It may be, also, that the ideas generally entertained of the peaceful and undisturbed life led by the peasant, best harmonize with the calm enjoyments so essentially promoted by the cultivation of a taste for beautiful scenery. To these causes may be, in a great measure, attributed the becomingness of the cottage in almost every kind of landscape. But the question involves other considerations. Buildings are the more picturesque and classical, in proportion as they are more dissimilar in form and character from those appropriated to our own use; and it matters not whether this dissimilarity be owing to remoteness of date, to the country to which they belong, or to the class and station of their owners. The buildings of remote times, whether they be houses, palaces, or cottages, are becoming objects; time causing a sufficient dissimilarity between them and the dwellings which we ourselves inhabit, to prevent those associations of commonplace which destroy classical connexion, and even picturesqueness. Distance of country and climate has a similar influence; and many incidents of domestic habits, which would be reputed low, and of bad taste, when introduced into scenes familiar to us, may pass for picturesque and interesting, when connected with distant climes and manners. Linen hung from the windows of an Italian villa, and other similar usages, may be allowed in the representation of Italian scenes; but such customs cannot be too carefully banished from those of our own neighbourhood. By selecting the dwellings of the poor for our subject, we enter into a path which, being separated by the distinctions of society from that which we are in the habit of frequenting, is rendered pleasing and novel; in the same manner as scenes characteristic of foreign customs, or of remote periods of history, are rendered appropriate and interesting by intervals of space and time: either forms a digression from those objects and incidents which usually meet the eye.

The appearance of a building is natural, and consequently, its style tasteful and elegant, in proportion to its adaptedness to the purposes of its erection, as well as to the climate and other external influences; and the good or bad effect of any particular style, greatly depends upon the circumstances under which it is introduced. Projecting roofs look well when connected with the impression of shade or shelter; they imply the former when flattened, the latter when inclined and lofty. The projecting of the building itself in the upper stories harmonizes, as a rude means of gaining space, with the narrow streets and confined squares of populous cities. It betokens the commercial activity of former times; and though inelegant, has a quaint grotesqueness which adapts it to the purposes of the art.

Large and numerous windows contribute greatly to the apparent lightness of the fabric. Their appearance is particularly suited to a fine climate and beautiful scenery, where all without delights the eye. The same may be said of verandahs and terrace-roofs. The minute work bestowed upon the windows, lattices, and the ornamental parts, bespeaks a degree of attention to neatness and comfort which the looker-on is inclined to extend to the interior of the dwelling.

Artificialness.—Artificialness in the style and character of buildings results from the abuse, rather than from the necessary practice, of art. Nothing is more objectionable in a picture than the representation of that which is artificial. It is alike a proof of bad taste, in the park, the garden, the palace, or the pavilion; but the reproduction, on board or canvass, of objects having an artificial character, evinces more than bad taste; it implies a disposition to flatter the false judgment of others. To accustom the eye to that which is appropriate in purpose, and tasteful in execution, is perhaps the safest way to detect any falling-off from a pure to an artificial style, although it generally reveals itself in the aim of the work. The artificial style of a building or construction of any kind is commonly marked by a false pretence to usefulness; as in the case of an inaccessible watch-tower, or of a bridge thrown across a stream, too high or too fantastically built to be serviceable, and without communication with the adjacent parts. It likewise reveals itself by usefulness misapplied; of which, open kiosks and pavilions in a climate too cold, or in a situation too damp, to admit of their use, projecting sheds and shady galleries where the sun has no power to offend, are instances. The bridge, the watch-tower, the pavilion, and the shady gallery, are not useless things; but their introduction into places where they are not wanted, or their misapplication, gives them at once an artificial appearance.

The Ornamental.—The ornamental, unlike the artificial, has no disguise, and although originating in use, as in fountains, or in columns and other parts of a building, its avowed object is to please the eye, the fancy; but the artificial, ostentatiously presumes to please, not only with its real merit, not only with its visible attractions, but also, as before observed, by a feigned usefulness which it does not possess. The ornamental raises itself by the excellence of the workmanship, rather than by the costliness of the material. Thus, elegant devices are wrought in wood and coarse stone, and bronze and marble are considered worthy depositories for the noble attitudes and expression of the human form. But the artificial embellishes petty and insignificant objects with the most costly materials; caves and grottoes are decorated with shells and crystals; the Indian cottage must have its gilded ornaments, and the chalet cannot be made truly Swiss without a daub of paint and varnish. The one endeavours to attract attention and win applause by an external show of glitter, which conceals the inferiority of the workmanship and the uselessness of the purpose. The other addresses itself at once to the taste and under-standing, which it satisfies by its excellence, seeking no higher claims to notice.

Although the work of art, buildings cannot, as far as their introduction into a picture goes, be considered as artificial objects; their distribution, and in some measure their form and appearance, depend upon chance or necessity. The landscape-painter should avail himself, to the fullest extent, of the choice and liberty afforded him by the accidental combinations which will occur when buildings, more particularly dwelling-houses, are piled together, disregarding, perhaps, as far as truth and consistency will allow, the rules by which the architect himself is guided in the planning of them. Symmetry, it is true, when it is intentional in the original, should be adhered to with the strictest precision in the copy; but it should be avoided when the result of accidental combinations.

Variety.—In buildings, as in other objects, variety does not result from a confused irregularity in their distribution, but from a mingling of dissimilar forms and lines in a certain proportion. The horizontal and protracted line of a wall, or the vertical form of a lofty tower, should contrast with groups of smaller buildings; the pointed gable, with flattened roofs, turrets, and pavilions;

the vaulted niches, or archway, with the square openings of windows; things the most opposite in their nature and object should be brought together, and interest the inquiring eye with a continued supply of variety.

Proportion.—The relative size of the different parts of a building seems, in a great measure, to depend on the extent of their use and importance with respect to the whole. Thus, the openings to a dwelling become successively larger, from the window to the gate, according to their degree of importance; although the proportion of each of them is, at the same time, subject to the rules of taste and symmetry with respect to the entire edifice. Sometimes proportion is balanced by number; of three unequal arches, the centre one would be the largest. An aggregate number of small columns equals a single large one; in buildings, strength and solidity require it. From use, this principle extends to ornament; and in the embellishments of a square, that which occupies the centre should be the largest; other objects less important surround it. The opinion expressed in Blair's "Discourse on Beauty," coincides with these general views: "I am inclined to think," says that author, "that regularity appears beautiful to us, chiefly, if not only, on account of its suggesting the ideas of fitness, propriety, and use, which have always a greater connexion with orderly and proportioned forms than with those which appear not constructed according to any certain rule. It is clear that Nature, who is undoubtedly the most graceful artist, hath, in all her ornamental works, pursued variety, with an apparent neglect of regularity. Cabinets, doors, and windows, are made after a regular form, in cubes and parallelograms, with exact proportion of parts; and by being so formed, they please the eye, for this good reason, that, being works of use, they are, by such figures, the better suited to the ends for which they were designed. But plants, flowers, and leaves, are full of variety and diversity. * * * Cones and pyramids are beautiful; but trees growing in their natural wildness are infinitely more beautiful than when trimmed into pyramids and cones."

The connexion, however, between proportion and purpose is most apparent in habitable edifices; in those consecrated to religion, this connexion between proportion and use is but feeble and uncertain. The window of the Gothic cathedral often exceeds in size the porch above which it rises; and other parts of the edifice, having no avowed object, are considerably larger than some of those which are not only useful, but necessary.

Churches of the Grecian order present, notwithstanding their greater regularity, a disproportionate extent of those parts, which, strictly speaking, are unnecessary. Domes and towers rise to a prodigious height, where the simple roof would answer equally well all material purposes. But the difference of object between a temple and a dwelling-house necessarily gives rise to a different plan of construction. The size and proportions of a temple have little connexion with the habits, the wants, or domestic comforts of those who resort to it. The whole structure is, as it were, the emanation of a pious feeling; its size and magnificence increase with the liberality of its founders, and the lofty dome swells up to heaven as a monument of reverence and gratitude. The tower owes its first origin to a different cause, namely, its adaptation to the use of bells, although the same feeling which has raised the cupola, and enlarged the nave, has elevated and embellished the tower beyond what was required for the purposes to which it was first adapted. The loftiness of the tower is not, however, to be traced entirely to sentiment; it has its real use, an use immediately connected with the purpose of the edifice itself. The greater the distance at which the peals are heard, the more numerous are the crowds summoned by the call; and to secure this, the elevation of the chime must be proportionate to the volume of sound. Between the mosques and their minarets, the relative proportion is very different; but it is better suited to the more circumscribed area over which the song of the dervish extends. Architectural harmony would suffer from the reduction of one of the chief parts of the edifice, were it not that numbers re-established the balance; and according as the body of the mosque increases in size, these slender and beautiful turrets are proportionately multiplied.

Colour.—The choice of a colour in houses and other buildings depends, in a great measure, on that of the back-ground, upon which it should come out in prominent relief, but, at the same time, without disturbing the harmony. The lighter and warmer colour should be kept foremost; the grey ones more distant, in order that the effect may conform to the natural gradation of tints caused by the intervention of the atmosphere.

With the exception of the gaudy colours, there are few which may not become suitable under befitting circumstances. A whitish or greyish yellow is well suited for houses; brown tints also, look well, and come out picturesquely on a light sky. The green should be the result of moisture or vegetation; it seems very objectionable as the painted colour of a house. Like the red, the bright yellow, and other gaudy colours, it can scarcely find admittance in a picture, unless it be the exact copy of some peculiar national custom. Paint and gilding can only be tolerated on the exterior of edifices, when supported by a high degree of finish in the decorations, as in the Oriental architecture. Pure white may look well on a palace or pavilion; but it shews too much the whitewash in the cottage or any other insignificant structure. The white fabric looks better on a barren or rocky soil than when surrounded by vegetation, with the soft and darkened colours of which, its distinct and glaring appearance cannot harmonize.

RUINS.

In those tranquil undisturbed scenes, where the impressions produced by outward picturesqueness of form give place to reflection, the ruin becomes a delicate allusion to the frailty of human existence. This is, at least, the moral side of the subject which should be most prominent in the representation of a ruin in a classical composition, and which, next to its advantages as a beautiful object, constitutes one of its chief sources of interest. In a picture, it is necessary to give up the greater part of those associations which render ruins objects so valuable to the antiquarian; they must cease to point out, in a special and distinct manner, the character and customs of the nation to which they belonged, the period at which it flourished, and its connexion with other people. All these circumstances cause the thoughts to wander beyond the limits of the scene, and detract from its unity. At Tiryns and Mycene, near the gulf of Nauplia, there are ruins in Hellenic masonry, the rudeness of which refers them to the remotest periods of Grecian history; whilst their comparison with the finished and elegant monuments at Athens, brings down these last to a time, as it were, little remote from our own. The walls of these two cities are formed of huge blocks of stone, imperfectly shapened to each other, and uncemented; and the subterranean vault near Mycene, considered to have been the treasury of Atreus, and also designated as Agamemnon's tomb, though more perfect in its design and work, presents in its singular character, and the massiveness of its construction, a style equally primitive. In both cases the surrounding prospect is perfectly barren: no bushes deck the harsh nudity of the walls, no shrub casts a doleful shadow on the mausoleum. But in a drawing of monuments of this kind, these circumstances, unpicturesque as they are, could not be omitted; or the spot would lose its peculiar character. The representation of them must, therefore, be confined to the form of a mere diagram, or illustrative sketch, having for its object the style of the ancient monument and the peculiarities of its site. It is an interest, which, to be fully partaken of, should be quite distinct from that which a finished picture affords, and which is derived from a source too different to admit of their being both embodied into one sentiment.

In a picture, the ruin has a more limited influence; it associates with the pleasures of stillness and solitude. Its object should be to pacify the mind, and not to excite it to exertion; to smoothen the paths of meditation and not to add to their intricacy; gently disposing the thoughts to calm and placid reverie. Attention to the style of the ruin becomes therefore necessary to such an extent only, as may ensure its perfect concordance with the country which the character of the scene points out. The abbey, the castle, the aqueduct, and the temple, must necessarily be placed in situations where such ruins are respectively to be met with. If discrepancies of connexion be thus avoided, the remnants of almost every style of edifice become very appropriate objects for the pencil; perhaps, the simplest and least pretending are the most so. The softening of the edges by time and weather, as well as the abundance of vegetation which grows upon them, often render picturesque the most shapeless ruins, and lessen the heaviness of the most massive constructions.

Ruins mingle and harmonize well with modern habitations; indeed, the contrast sometimes adds to their effect. But this combination of the old and new should be the result of accident, and not of an attempt to improve the former, by the embellishments of modern art. The style of surrounding edifices should be unpretending, and better still if they have no style at all. The sublimity of the antique shines forth amidst the grotesqueness of an humble class of dwellings, but it loses by the companionship of other monuments less pure in style. The elegant is not set out, but debased rather, by the contrast of the inelegant. It is time alone which can render more recent additions to ancient edifices excusable in the eyes of taste. They then become more or less historically connected; they have, in part, shared the same vicissitudes, weathered the same storms; and we should be unwilling to sever the ties thus contracted, although the result of the union be not the happiest. In Rome, the abundance of ruins is such, that the mingling of architecture of different styles and periods presents itself under every form. There are, indeed, instances of ruins, formed by the combination of old and new materials, or fictitious altogether. These idle imitations not only present themselves with the worst grace where the abundance of the remains shews that time has been unusually sparing, but have a most pernicious effect on the real ruins of the same class, with respect to the genuineness of which, the casual observer remains sometimes unpleasantly in doubt. This does not apply to the chapels encircling the arena of the Colosseum. They certainly may be partly liable to objections of this kind, as indicating a pretension to embellish a ruin unembellishable; but the circumstance that the whole edifice has been consecrated, and an appeal made to the piety, so strongly imprinted in the character of the Italian peasantry, for its protection, alters at once, in the mind of the traveller, the connexion which he is inclined to establish between these fourteen chapels and the ruin which encompasses them. Nowhere, perhaps, can this national feeling be more forcibly expressed by its external emblems than in an amphitheatre. That religion should now be the best guardian of an edifice once raised to satisfy the avidity of the Romans for sights of blood, attests the great change which has taken place in the social and moral habits of the people; and the petty character of these modern decorations soon becomes absorbed in the superior interest of historical and local associations.

In Greece, more than in any other country, the modern art might be best expected to associate and harmonize with the ancient. The prevailing feeling there, is, that of reviving the nationality of ancient Greece,—of establishing a close and patriotic connexion between its former splendour, and its present prosperity and political influence. This spirit shews itself in the adoption of the language of the ancient Greeks, of their dramas, coins, &c.; but, fortunately for the arts, it has not been allowed to encroach upon the purity of the ancient monuments. At Athens, no attempt has been made to embody these memorials of the past in the rising city. Their simplicity and chasteness remain undisturbed by the proximity of any modern edifice. These have been kept at a respectful distance; and, in their modest retirement, exhibit no pretensions to imitate the sublime prototypes of architecture, which the nation prides itself in possessing. This forbearance is the more striking, since the same elements which produced the majestic temple of Jupiter and the Parthenon, are still had recourse to for the ornament of the modern city.

The little apparent connexion between modern Athens and the monuments which adorn the neighbouring heights, shews the impossibility of forming any close union, whether architectural or moral, between the two; and of raising the splendour of the modern city upon the venerable remains of her former greatness. How different the allusions to the past, which Nature has, as it were, accidentally brought about! The rocks of Mount Pentelicus, still rough from the strokes of the axe, and its slopes covered with the fragments scattered by the chisel, impress forcibly the time when the columns of the Olympian Temple, or the beautiful friezes of the Parthenon, were cutting out of the quarry, or making their way down the rugged paths of the mountain. You might almost fancy, by turning a projecting corner, or by penetrating into the ravine which forms a natural footway up the ascent, to see the busy slaves and their robed masters; indeed, all the life and bustle which the erection of a stupendous monument of art would spread into the very passes of the mountain. Some large blocks lying prostrate for immediate use, and numberless chips glaring white from their recent removal, draw still closer together the union between the present and the past, which appears so unexpectedly in this retired recess.

The rich yellow tint so conspicuous in the marble monuments about Athens is not one of their least remarkable features; the decomposition of the marble has taken place at the very surface only, and the brilliant colour of this light and superficial envelope makes it appear, that the golden rays which in this beautiful climate have for centuries risen and set upon these ruins with almost unvarying splendour, had at length left a stain upon the marble, bright and pure as the light which plays about them.

Generally speaking, ruins present less variety of colour than the rock whence the material was taken. The roughness of their surface, which allows the water to escape down the furrows and gives speedy effect to the drying action of the wind, prevents the formation of the green tints which are the result of moisture; and which are more abundant on plastered walls or smooth stone, over which the moisture spreads.

Those monuments at Rome, the materials of which are indifferently rough and smooth in various parts of the edifice, present considerable variety of tint. Some indeed, having been patched up at different periods, present a picturesque contrast of the brown and lighter colours; but the numerous brick buildings near the Forum in the Campagna do not shew much variety, and few traces of green, excepting where exposed to damp: thick foliage, however, decks their summits and projecting parts.

The brick masonry of the palace of the Cæsars and of other similar ruins, is of a dull warm grey, nearly uniform; but the upper part of the walls has become brown. The exterior of the Colosseum, and such other buildings as are externally sheathed with a covering of stone masonry, have more or less a yellowish tint; but scarcely present a distant resemblance to the gilded appearance of the ruins at Athens.

FIGURES.

The necessity of introducing figures into a landscape need not be urged. Every picture, whether it be a composition or taken from nature, testifies that their presence is indispensable. The most brilliant scene would be flat and insipid without them, and solitude itself must have its votary. It is also sufficiently acknowledged, that in the landscape, figures should be second to the scene in which they are placed, as the landscape is second to them in historical pictures, or scenes of human life. This principle seems even to have been recognised by the ancients, since the fresco landscape paintings, on the walls of Pompeii, present figures very small compared with the other objects composing the scene, having, with respect to them, about the same proportion which it is usual to give them at the present time.

Some artists of the old Italian school have produced works in which the interest of the landscape is nearly equally divided with that of the figures. Amongst them may be mentioned Nicholas Poussin, Albano, Annibale Caracci, and, in some instances, Salvator Rosa, though, in general, the latter shews off the grandeur of his landscapes by diminutive figures. The success of some of the Italian masters, in combining the interest of the landscape with that of the human figure, seems to be owing to the peculiar suitableness of the subject of the principal group of figures to the scene; and sometimes, also, to the simple character, or to the unity of the figure introduced, with which the surrounding objects are so perfectly connected, as almost to supply the place of neighbouring figures. This is the case in the numerous representations of St. John; but particularly in the picture with a single figure in a wilderness, by Salvator Rosa, in the Pinacotheca of Milan. The expression of serene, but deep and thoughtful melancholy in the figure, associates with the wildness of the scene, and forms an inseparable whole. In the pictures of the Poussins,—Nicholas in particular,—the connexion between the figures and the locality is very intimate, and the tombs and other monuments, interspersed between the figures and the landscape, link them still closer together. The smiling character of Albano's landscapes is necessary to the developement of the grace and elegance of his groups of figures, whose beauty is thereby greatly enhanced.

These partial successes of great masters are hardly sufficient to warrant imitation, unless in some rare subjects particularly adapted for the blending of the landscape and figure. Wilson has attempted to unite in one drama the passions of men and the effects of nature; but notwithstanding his superior genius, and the skill which he has shewn in forming this union, it has been deemed a complete failure by Reynolds. In his Niobe, he has gone so far as to attempt to express grief and fear in the countenance of figures, small compared with the landscape, and evidently second to it in interest. Perhaps there would have been less chance of failure had he confined the expression of his figures to the motion of their limbs, embodying the human passions only so far as they can be expressed by action. This action of the figures diffuses the attention over the surrounding space; whereas a marked expression of the countenance causes it to centralize there, preventing that general survey of a scene, necessary to its enjoyment, when various and dissimilar objects are brought together.

In the representation of battles and pastoral sports, where expression is chiefly limited to muscular action, the blending of the animate and inanimate portions of the scene is effected more easily. Kuyp, Potter, Berghem, and others of the Dutch School, have shewn that, in rural scenes also, the interest of the figures and of the landscape may be pleasingly interwoven and balanced. In Claude Lorraine, the figures—generally put in by Filippo Lauri—are very prominent and highly finished; but their appearance is generally connected with some active occupation: such as a Debarkation, a Procession, a Sacrifice, a Dance, or a Flight into Egypt; and these subjects, so important as to give, sometimes, their name to the landscape, become interwoven with its scenery by the motion and dispersion of the groups of figures.

Owing to their uniform size, human figures guide the judgment in determining the proportion of every single object in a landscape; but, taken as a whole, the other objects should have no inconsiderable influence in determining the proportion of the figures, since the inanimate portion of a landscape is the predominant one. The figures, although of superior interest to any part of the scene, taken singly, must yield with respect to the general effect, and be distributed and proportioned according as that effect requires.

The difference, in the proportion which the figures bear to the picture, in historical, and in landscape paintings, is at once striking. In the former they generally reach at least to one-half of the height of the canvass; and in compositions where two or three figures only are introduced, they sometimes occupy nearly the whole of the space; whereas, in landscapes, about eight or ten lengths of the figures may generally be reckoned to the height of the picture, when well proportioned; their size then corresponds, for an observer placed at a convenient distance for seeing the whole of the picture, to that of figures in nature situated about twenty yards off; whilst, in historical pictures, the figures being generally of the size of life, their supposed distance from the eye is limited to the space which the observer allows himself for seeing the picture to advantage. If, therefore, the figures in both styles be considered with reference to the proportion which they respectively bear to the figures in the real scene, those in the historical painting must be considered as occupying a situation three or four times nearer than those in the landscape; and the latter would, if nature were strictly adhered to, be put in with that indistinctness of outline and softened tone of the colours, which figures in a natural scene acquire at the distance alluded to. But this true principle is departed from in painting, partly from the necessity of throwing back the more distant objects, by giving additional force to the nearer ones; and partly on account of the additional sprightliness which little figures, distinct both in outline and colour, give to the composition. In historical pictures, there are greater difficulties to be overcome, whenever buildings and other objects having a relative proportion with the figures are introduced; want of space renders it necessary to shew these larger objects in parts only. The base and shaft of a column must be introduced without its capital, or the trunk of a tree without its branches. An edifice can be represented entire, at a certain distance only behind the figures; in which case, the plane on which the edifice stands, being detached from that of the figures, the want of some connecting objects is felt, although deficiency of space perhaps opposes itself to their admittance. These difficulties may be satisfactorily overcome in very large pictures; such as those in which Paul Veronese and Tintoretto have introduced architectural scenery and a multitude of figures; but in historical pictures of more reduced dimensions, in which the proportions of life have been adopted for the figures, the inanimate objects are either put in very lightly, or omitted altogether. The supposed proximity of the observer to the front figures in an historical painting, or, which is the same thing, to its foreground, causes a more rapid diminution of the objects situated beyond, at given intervals, than in a landscape, in which, the foremost figures being already at a considerable distance, the perspective influence on the objects situated beyond is less perceptible, and they become naturally more important and predominant; and this is, indeed, the character which they ought to assume, in every composition strictly rural.

If the method adopted in the landscape, of putting in the figures on a very reduced scale, be true to nature, that followed in historical pictures, since it differs widely from it, must, it would seem, be necessarily false. The chief cause of inexactness lies, however, in the varying station taken up by the observer; and it is, perhaps, rather singular, that it is not when he draws closer to the picture, that the historical figures become disproportionately large; but, on the contrary, when he recedes to a considerable distance from it, as the remote objects of the picture do not then appear sufficiently large for the figures, which an increase of distance has simultaneously though insufficiently reduced. In other words, as the observer recedes, the difference of proportion between the objects in the second plane of the picture, and the figures, ought, according to nature, to be less marked; but as their relative proportion remains the same in the picture, whatever be the distance to which the observer retires, the scale of the distant objects becomes, in appearance, too reduced for that of the figures, and these, by comparison, become gigantic.

In the landscape, it is considered preferable to put in figures somewhat less than the size of Nature, rather than otherwise, since the interest which naturally attaches itself to the occupations of figures, suffices, of itself, for them to maintain the station which they are intended to occupy in the scene; and it is necessary to make some allowance for this additional interest, and, at the same time, for the unobtrusive character of the landscape portion, in order that the interest of the latter be not too much enfeebled. Misproportion and inaccuracy of perspective are more liable to occur when the figures are above, than when they are under, the true proportion. If they be too large, want of space obliges the trees and buildings in the foreground to be put in, much too small for the figures. The same defect extends to those which come behind them. They are either painted too small for their situation in the picture, or too marked and heavy for distant objects. In a Magdalen of Caracci, I have observed striking incongruities of drawing and aerial perspective arise from the awkward situation in which the painter had placed himself, by putting in the figure disproportionately large. It may be preferable, in such cases, to shew the objects in the foreground in parts only, the remainder being, it is supposed, hidden by the frame.

Very small figures add to the grandeur of the scene, by increasing the apparent size of the inanimate objects. The objections to this plan are, that there is inevitable disproportion between the figures and the trees, the houses, and all objects which have a fixed or rather approximate size. There is also wanting, the progressive diminution of the figures as they are situated farther off, it being impossible to render the more distant ones sufficiently small and indistinct, in order to maintain the true vanishing effect. These defects, however, may be sometimes excused in favour of the result, which is, an increased breadth and grandeur, more especially in fanciful compositions, where proportion is supposed to be indefinite, as in Martin's Historical Landscapes.

Costume.—In comparing the modern landscapes with those of Poussin and his contemporaries, one cannot fail to remark the difference in the style, or rather in the costume, of the figures. Generally speaking, the old masters referred to ancient Rome and Greece, to the heroic times, or to sacred history, for their costumes and draperies; but their example has been very little followed by the moderns, who now reject, as theatrical and pedantic, the introduction of ancient figures into landscapes, although they approve of the practice in pictures of the old school. The custom originated, probably, in the prevalence of historical compositions over landscapes. This last branch of the art, adopted with respect to its figures, the practice of a style which, from its higher estimation, gave the rule in questions of taste and custom. The Dutch, who required no altar-pieces, and few historical pictures, devoted themselves with more ardour, and more exclusively, to landscape-painting, and emancipated themselves from the influence which the historical department of the art had exercised in Italy. This path, which the homely and portrait-like character of the Dutch landscapes rendered almost necessary to them, the moderns have followed, in order to adapt themselves to the spirit and circumstances of the times. But this change of opinion may be otherwise accounted for: at the period in which the arts flourished in Italy, the countries from which the scenery of the best compositions was borrowed, were better known by traditions, or the works of the ancients, than by the descriptions of contemporary travellers.

A veil was thrown over the Greece and Syria of that time; whereas, the ancient historians revealed to art the aspect and customs of those countries in the classical period. Thus, the ancient draperies, weapons, and games, seemed almost more natural in pictures, conceived in the true spirit of antiquity, than the costumes of the same countries would have done at the time in which those pictures were painted. At the present day, every country has been explored, each characteristic feature correctly delineated, and the costumes of the ancients must necessarily appear forced and unnatural, when introduced into compositions shewing these countries in their present aspect. Costumes a century or two old may be introduced with less inconvenience. It is going back just far enough to avoid the stiff and unpicturesque clothing of the day, and no further. Moreover, no material deviation from the present style of buildings, and other accessories, is required.

Fashion.—The correct landscape rejects not less peremptorily than the historical painting, the introduction of any thing approaching to fashion in the costume of the figures. The practice is in many cases difficult to avoid; but it at once lowers the work from the rank of a picture to that of a portrait. The landscape, although inferior to historical painting with respect to the difficulties of the art, may be raised to the same level in point of purity of style and chasteness of sentiment. The moderns avoid subserviency to the anti-classical spirit of fashion, either by adopting the dresses of the peasantry, or by introducing those of foreign countries, a practice which becomes daily more followed, from the necessity of satisfying the prevailing thirst for information. In foreign costumes, fashion, even where it does exist, is concealed under the more characteristic and interesting expression of nationality; and in the East, the prevalence of castes, which obliges almost every individual to adopt some characteristic distinction in his dress, and the great simplicity of their outer garment, sometimes a mere shawl or cloth, which may be worn in this way or that, according to the convenience or caprice of the individual wearer, obliterate almost every trace of it in the eyes of a foreigner.

The costume of the peasantry seems to be always pleasing, independently of these local associations, and shews even more forcibly than the peasant's habitation, how simplicity and unpretence will always find an honoured situation even in subjects perfectly pure as to taste.

Details of Colour and Tone.—Groups of peasantry in sunshine, come out before each other, both with local colour, and with light and shade, the one nearly balancing the other in force of effect. The colour of the clothing appears sober even in the sunshine, with the exception of the linen, which sparkles. At a distance, the face and hands present but a touch or two of light. The part in the shade is little seen; the shadows are broad, and not much divided into little masses. When the figures are lighted up in front, scarcely any shadow appears, and the differences are chiefly those of the local colours, which do not seem deficient in effect. Strong reflected lights, as from a road or building, in full sunshine, are very conspicuous on the shady side of the face. On the dress they are but slightly so, owing to the absorbing nature of the cloth; in situations where there are no strong reflexions they disappear, and the transitions from one costume to another are almost entirely those of local colour. These transitions vary continually, as the figures come before each other in different positions. The clothing of the men is chiefly limited to modifications of grey and brown. The blue appears less often, and less brilliant, than artists are wont to employ it. The red sometimes meets the eye unaltered, particularly in the female dress; but the want of sufficient distinction in the tints of the palette obliges artists to have more frequent recourse to the primitive colours in the costumes of the peasantry, than would be warranted by the imitation of nature.

Grouping.—The grouping of figures is essential to their introduction into a picture. It is conforming to nature, and satisfies the rules of the picturesque. Isolated figures, scattered at intervals over the picture, have an appearance as monotonous as it is improbable; and it is generally owing to the timidity of the artist, and to his reluctance to conceal any portion of his work by another, that they are not brought together with that lively and mingled action, which results from natural impulses. In groups of small figures, where the passions cannot be strongly marked, variety becomes one of the chief sources of interest. It is procurable in a hundred ways, depending on the form, attitude, colour, and the costumes of the figures.

Similarity in the attitudes should be avoided to a certain extent only; indeed its partial existence is almost necessary to the variety of the whole. A position given to each figure different from that of its neighbour, far from producing the variety which is sought after, causes monotony and reduplication. In a group of seven or eight figures, two may be inclined, without inconvenience, the others may be standing in dissimilar, but not opposite positions; one, or at most two, distinguished from the rest by their height, or peculiar attitude, would suffice to impart to the whole a character of variety. The concealing of one figure by another gives ease and nature to the group, and it is interesting to observe how much a portion of the head, or of an extended limb, just appearing from behind, has been made to tell, when skilfully introduced amid the animated throng. It is the extremity of the limbs which denotes the position and action of a figure: a small portion of these disclosed, goes farther towards expression, than a large portion of the body.

If the subject be spirited and full of action, less attention is needed to the colouring and other artificial means of producing relief, than when chance alone has brought the figures together. A lively and concentrated expression, both in the countenances and in the movements of the limbs, links the group together in harmonious action; yet, at the same time, it disentangles each individual figure from the confusion which a promiscuous assemblage of limbs tends to produce. In Raphael's Transfiguration, the animated expression of the group becomes a powerful means of imparting nature and ease to the muscular action of every figure. It is the expression itself which engrosses the mind of the observer, and not the means employed to produce it, and the eye scarcely notices such attitudes as would, if deprived of the source of energy with which they are connected, appear either extravagant or ridiculous.

It is natural that an incident which awakens emotions of the same kind throughout a crowd, should give rise to similarity of expression and attitude as far as its influence extends; but beyond this, the repetition of form, or rather of position, will appear a defect. The introduction of corresponding attitudes in opposite directions, as, for instance, figures stooping, each the contrary way, appears misplaced and artificial. Some of Bassano's pictures exhibit this defect in a very striking manner. They are scattered over with numerous figures kneeling or stooping, in various directions, busied in agricultural or domestic occupations.

WATER,

AND ITS VARIOUS EFFECTS.

Water, simple and uniform as is its nature, enriches the scene with a great variety of effects. It exercises its influence on the imagination in many different ways. It is the image of repose, in the tranquil pool; of progress, in the river; of extent, in the ocean; and of destruction, in the torrent. Likewise, its fertilizing influence on vegetation; the refreshment which it affords to man and beast; its rains, its dews; the buoyant mobility of all that floats upon its surface, afford numerous incidents which speak to the imagination, and extend, without limit, the means of imparting expression and sentiment to the landscape. The copious tide sweeps by and disappears from sight, but the delicate images on its surface, and the little playful waves which it raises in its precipitous course, remain.

The forms reflected on water have a charm which it is not easy to define. The beauty of a scene is perhaps heightened in our estimation by the repetition of it on the placid bosom of a lake, in the same manner as nature's merits are disclosed and made conspicuous in a skilful copy. It may afford some interest to compare the living scene with its sleeping image; at times fancifully interrupted by the dancing wave, or eddying tide; at times settling down into an exact and delicate picture, as the agitation of the water dies off, and gives place to the polish of the mirror.

The utility of water in the landscape scene is not asserted by art alone; but it is a prevailing feeling, wherever there is a taste for that which is beautiful in the scenery of a country; and as a stream, a rivulet, and almost a thread of water, will satisfy, the advantages presented by it are, doubtless, in great measure, attributable to the chain of various impressions which its appearance suggests.

The colour of water being generally very light, from the reflexion of the sky, its usefulness in the picture shews itself in diminishing the heaviness which would result from the uninterrupted extension of the darker parts: but, when spread over a large surface, this mass of light endangers the depth of tone of the surrounding objects, which, in order to avoid too sudden transitions, it becomes necessary to keep correspondingly pale and feeble. This defect may be avoided by throwing some of the principal objects beyond the water: their reflexion then extends over its surface, and may be made to give it a colour suitable to the effect of the composition.

The smooth surface of water forms an admirable background for small figures and other delicate objects, but the introduction of the sharp lines of buildings on this medium requires considerable caution; and their transition should be softened by light foliage. With respect to form, water offers no other considerations than those which belong to lakes, rivers, &c., and which will be found under those heads. I will therefore proceed to the Colour of Water, first introducing, as connected with the forms of basins of water, Gilpin's remarks on the boundary line of the "Lakes of Cumberland and Westmoreland:"—"Sometimes the boundary line is boldly broken by a projecting promontory, sometimes indented by a creek, sometimes it undulates along an irregular shore, and sometimes swells into a winding bay. In each of these circumstances it is susceptible of beauty; in all, it certainly deserves attention: for as it is a line of separation between land and water, it is of course so conspicuous a boundary, that the least harshness in it is discernible.

I have known many a good landscape injured by a bad water boundary.

"This line, it may be further observed, varies under different circumstances. When the eye is placed upon the lake, the line of boundary is a circular thread, with little undulation, unless when some promontory of more than usual magnitude shoots into the water. All smaller irregularities are lost. The particular beauty of it, under this circumstance, consists in the opposition between such a thread and the irregular line formed by the summits of the mountains.

"But when the eye is placed on the higher grounds above the level of the lake, the line of boundary takes a new form, and what appeared to the level eye a circular thread, becomes now an undulating line, projecting and retiring more or less, according to the degree of the eye's elevation. The circular thread was indebted for its principal beauty to contrast; but this, like all other elegant lines, has the additional beauty of variety."

COLOUR OF WATER.

The colour of water is either fixed and real, or it is apparent, as is the case when it depends upon various combined influences; such as reflexions, transitions of shadow and sunshine, the depth of the water, its transparency, as well as the colour of the bottom.

Fixed Colour.—According to Thomson and Mr. Brande, water, in a state of purity, is a colourless fluid. This alleged colourless condition of water, doubtless, has reference to its appearance in small quantities, and not to that which it presents when, like the sea and the atmosphere, it is seen in very large masses—successive layers appearing behind each other. Carefully distilled water must also be understood, since in the state of greatest purity in which nature presents it, not even excepting rain water, the vegetable or alkaline substances contained in it, are sufficient to influence its colour in some degree, and this influence appears in the differences of colour peculiar to natural springs.

The colour of water is chiefly derived from foreign particles in a state of solution or suspension; it is proportionate to the number of them seen within a given space. Consequently, an increase of depth is equivalent to a greater intensity in the colour of the water. But this is limited by the extent to which the light penetrates into the water, and illumines the colouring particles. An increase of depth, so considerable as to preclude light, adds little to the colour of the water; and when it is turbid and opaque, the colour shews nearly at the surface.

Deep rivers and lakes exhibit differences of colour which would scarcely be perceived in more shallow streams. Comparison, however, shews differences in the colour of such waters as would generally be considered highly limpid. For instance, if glass cylinders, filled to an uniform height with water from different sources, and subjected to the same light, be placed upon a white surface, the least differences in the colour of the water are rendered apparent. A column of six inches presents a very marked difference in the waters of turbid streams, and a difference less marked, though appreciable, in that of clearer lakes and rivers; this difference is visible even in limpid spring water, and becomes very evident when the column of water is raised to ten inches.

Owing to the prevalence of similar differences in the water from different sources, its colour cannot be expressed by any general term. That of transparent spring water, seen over a white surface, seems to approach to a faint grey, slightly shaded with green or with yellow, and when the water is less pure, the last colour predominates. During a journey in 1844, I observed the water from different rivers in a glass cylinder, and found considerable differences of tint, which, however, did not correspond with those exhibited by the rivers themselves.

The change of colour which most surfaces undergo from being wetted, causes the influence of the water on submersed objects to appear greater than it really is. This influence is proportionate to the roughness of the surfaces; thewater acts like a coating of varnish, which, softening down the asperities, renders the colour of bodies more apparent.

Although the colour of water is derived from the colouring particles contained in it, it does not always happen that the most transparent is the most devoid of colour. I have observed limpid streams to be highly tinged with yellow; whereas a lake into which they flowed, though more troubled, shewed less colour.

In mountainous countries, the running streams are remarkable for clearness, combined with richness of colour; this, however, applies less to torrents flowing from glaciers, than to those which are supplied by springs. The clear stony bed over which they flow preserves the primitive limpidity of the springs in their after course; and it is only when storms and violent showers cause the torrents to exceed their natural channels, and to follow an unwashed track, that they become turbid, and change their appearance with their character.

Some of the rivers of Norway are remarkable for the beauty of their colour: the name of Gul-elf, or Yellow River, being given to one of them, on account of its brilliant yellow tints.

The colour of the torrents which flow from glaciers and fields of snow, is of a pale slaty grey, often approaching to white; and when the heat of summer causes a more rapid dissolution of the snow and ice, this whiteness increases, which gives some of the streams a milky appearance, and this tint is communicated, to a certain extent, to the lakes into which they are emptied. However, the torrents which flow from different valleys present considerable differences of colour, which often contrast very remarkably when they meet. The rivers generally issue from the lakes transparent in a high degree, and possessing deep tints of green and blue, sometimes remote from those of the primitive torrents. Nowhere, perhaps, is the change caused by gradual deposition greater than that presented by the Rhône. Its waters, which, before entering the lake of Geneva, are slimy and opaque, exhibit, as they issue from it, the most beautiful blue and greenish colours, and a high degree of transparency.*

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* Sir Humphry Davy, in his "Salmonia," ascribes a bright blue colour to the torrents derived from snow, attributing it to the great

It is often in low countries affording scenery of a soft character, that, owing to the alluvial nature of the soil, the streams and rivers are least limpid. Would not art require here some deviation from nature? The tranquil streams should have, or at least appear to have, pure water, in order to harmonize with scenes beautiful in repose, where the limpid stream, the placid sky, and the simplicity of the cottager, are associated in the same idea. Thick and darkened waters are in character where floods are introduced, or rather form the inseparable attendants of their usual scenes of devastation.

Apparent Colour.—The external influences on the apparent colour of water are so numerous and so powerful in their effects, that, taking the general aspect of water in the open landscape, it is to them, rather than to its peculiar nature, that

purity of snow water. I cannot concur in these remarks, as I have never observed the blue tint to acquire any degree of purity in torrents, before they had traversed a lake. That the *green tint*, however, should, to a certain extent, originate in the decomposition of vegetable matter, as is the opinion of the same author, seems more probable; and there is scarcely any doubt that peat moss communicates to the water yellow and brownish tints. Sir Humphry adds, that ferruginous and other mineral substances influence the colour of water with yellow and green tints, and that calcareous substances affect its transparency, but not its colour.

water owes that variety of tints which constitutes one of its most interesting characters. These external influences sometimes give to water appearances very dissimilar within a very limited space; as occurs, for instance, when objects of different colours are reflected on adjacent portions of its surface, or when the bottom presents transitions from light to dark. The agitation of the water, the foam and the sparkling of the sun on the drops, add still further variety. Yet such is our habit of detecting realities amid the most deceptive appearances, that we generally form an approximate notion of the true colour of water, when subjected to the most opposite influences. Sometimes, however, unordinary circumstances lead to some degree of doubt and uncertainty. A wave which rises over a bar in the River Traun, at Ischel, shews on one side a light green colour, and on the other a dark pink; the effect is most deceptive, but it is merely owing to a change in the depth and colour of the bottom.

Remarkable instances are afforded by the mountain lakes of Switzerland, whose peculiar colour may be owing to the extraordinary depth of the water, to the loftiness of the surrounding rocks, or to other causes which escape notice, amidst scenes and effects with which the visitor is little familiar. The lake of Tal-y-Llyn, at the foot of Cader Idris, in North Wales, may be mentioned, as being remarkable for the inky colour of its waters. A small elevated lake in the canton of Tessin, bears the name of Lago-Scuro, from its dark colour. There are, also, in Upper Engadine several small lakes remarkable for their deep blue tint. In the Austrian Alps, the small Schwarzen See, near Ischel, has a gloomy colour, approaching to black; and the waters of the Vorder See, at the foot of the Dachstein, in the valley of Gosau, resemble the purple juice of berries, when seen from a neighbouring mountain.

The presence of weeds, particularly of marine herbs, greatly influences the apparent colour of the water, even at a very considerable depth; indeed the transition which takes place in passing in a boat from a sandy bottom to one covered with weeds, is at times very marked and sudden, although the weeds themselves do not appear. Off the rocky coast of Egina, a variety of beautiful colours, from light blue and green tints, to pink and brown, accompany the passage of a boat, on a clear sunny day, over the diversely coloured bed of the sea, from twenty to forty feet deep.

The colours and effects presented by torrents under the combined influence of shadows, sunshine, and reflexions, are varied almost to infinity, and would, from their great richness, deserve the artist's particular study. I will give here some of the effects which have most struck me. Some of the streams flowing from the mountains, but not from glaciers, shew a green, yellowish, or copper colour on a stony bed, not very deep; an increase of depth adds to the local colour of the water, rendering it of a deep bluish green, or of a brownish colour: the sun acts chiefly on the shallow parts, lighting up the rising foam, or the stones and sand at the bottom, and giving an extraordinary degree of brilliancy to the water. Here and there the surface, unusually ruffled, conceals its luminous transparency, and reflects the azure sky with deep blue and purple tints. The shadow of a cloud renders those blue reflexions still more intense, and the contrast with the sunny and golden tints of the adjoining parts is at its highest.

The reflexion of the banks produces a deep brown in a copper-coloured stream; but the green waters become greener still from the presence of vegetation overhanging; colours of a different and almost opposite nature appear increased in vigour on this cameleon surface. These rich effects often proceed from a stream so transparent, as scarcely to shew a trace of colour on the shallow margin.

Transparency of Water.—Transparency, used as a term of art, has a somewhat technical meaning. It implies depth in the shadows, and a perfection in the art of laying on the darker colours, which gives them harmony and sweetness, at the same time that it conveys the idea of indistinctness and space; and with respect to water, it is frequently applied to those beautiful effects which result from a clear and distinct reflexion of the objects on shore. But I wish here to set aside these conventional meanings, and to keep to the most usual signification of the term.

The transparency of water is measured by the degree of distinctness with which the colour and the form of objects are visible, when immersed at a given depth. This transparency is diminished in proportion to the quantity of matter in suspension, but not by those substances which are held in a state of solution. Thus, highly-coloured water is sometimes as transparent as that which is apparently colourless; whereas it is the most transparent water which, in large quantities, has generally the deepest and richest hues.

Lakes seem to possess the highest degree of limpidity in the bays and recesses which are beyond the limits of the disturbance occasioned by the torrents which flow into them. The same may be said with respect to those parts of the sea which are sheltered from the effects of tides, or whose rocky bed nullifies their influence. On the rocky coast of Norway, plants and fishes may be seen distinctly at the depth of forty or fifty feet; and some navigators have mentioned that the bottom of the sea may be seen, in northern latitudes, at a depth of from 100 to 500 feet.

Owing to a principle in the reflexion of light from the surface of water, which will be referred to in the next subject, objects beneath its surface become discernible at a distance, which increases with the elevation of the observer. Thus, the shoals and beds of weeds in the sea may be traced to a distance of half a mile, from cliffs which rise fifty to eighty feet above the beach. From elevations still greater, this faculty of penetrating with the eye beneath the water's surface is extended much farther. From the mountain of Vuilly, rising 800 or 900 feet above the lake of Morat, the shallows may be traced, forming a distinct and curved line at the extremity of the lake, to a distance of two or three miles.

The Norwegian fisherman is aware of this circumstance, and erects on the banks of the fiords a kind of observatory, from which he is enabled to discern the motions of the shoals of fishes within a considerable range. A net is extended horizontally beneath the surface of the water, and when a shoal of salmon passes over, he draws the net together by means of numerous strings uniting at the platform on which he stands.

The transparency of deep water is unperceived until made apparent by the presence of submersed objects. A plank, the sides of a boat, or any thing else, causes light to be reflected from below, and shews at once the transparency of the water. It is likewise increased, in appearance, by the light colour of the bottom, the objects there being more distinct, in proportion to the quantity of light emitted by them towards the surface.

Owing to the habit of seeing buoyancy and fluidity united in a high degree in transparent fluids, the very motion of water conveys some impression of its limpidity, where it cannot be discovered by other means. The colour of water, shewn by transmitted light, is much warmer and brighter than that which is the result of light reflected from the surface. This colour may frequently be observed under the keel of a boat in shallow water, when the sun shines upon its surface on the side opposite to that on which you are looking; but it sometimes occurs, with a more brilliant effect, when the foam behind a falling sheet of water is lighted up by the sun. I have observed beautiful effects of this kind in cascades. The brilliancy of the colours thus produced increases with the greenish dye of the water, and with the intensity of the sun's rays. [See *Cascades.*]

THE REFLEXION OF OBJECTS ON WATER,

Particularly in Connexion with its Colour.

Various causes influence the colour and the intensity of the reflexions on the surface of water, and occasion very great differences in the relative tone of these reflexions, and of the objects producing them; so that precision, in this respect, is of very difficult attainment in painting. Sometimes the reflexions are so perfect on the glassy surface of water, that it is difficult to discern the point where the object ceases and the reflexion begins; but, in general, there is a falling off in the reflexions from the colours above water, if I may so express myself: those of the sky, owing to their superior brilliancy, are the least changed. The objects on shore, if light, generally appear somewhat darker in the reflexion; and if very dark, they appear less so. This, however, varies with circumstances: sometimes dark objects, for instance, a forest of pines, will appear even darker in, than out of the water, if it be deep, or the bottom dark; though, at other times, a dark wooded mountain will appear less obscure in the lake which reflects it, than a rock less dark in colour, but more abrupt, and, consequently, receiving less light from above. This I have had occasion to observe on the Lake of Gmunden, in Upper Austria.

The dark openings of doors and windows appear much less dark when reflected on an impure stream; and if the building be of an obscure colour, the reflexion of the open doors and windows may perhaps appear, if any thing, less dark than that of the building, although, in fact, they be a great deal darker. An inclined roof, particularly if it be thatched, or otherwise shining, reflects a greater quantity of light on the water, than to the eye directly, and, consequently, appears lighter in the reflexion. Elsewhere, the coming in contact of a dark reflexion with the bright reflexion of the sky, will make it appear darker, by opposition, than the same object out of water, which cuts upon a background of darker objects, and is not thrown out by contrast. Thus the interior of the arch of a bridge will sometimes appear darker in the reflexion, where its form becomes delineated upon the sky; and the trunks of trees growing upon the bank will appear considerably darker in the reflexion, where they do not appear backed, as in the reality, by other land objects.*

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* The reflexion of an arch on a canal, which from a near point appears darker than the arch itself, may, under given circumstances,

To an observer situated low, as in a boat, on a somewhat turbid stream, the reflexions will appear very distinct and clear near the shores; but as they extend lower down, and reach nearer to the point where he is situated, the images appear more troubled, and their colour, in particular, much less perfect, whilst that of the water predominates.

The causes on which these various changes in the appearance of the reflexions on smooth water depend, are, in the first place, the unequal reflexion of light from the surface of water, according to the greater or less obliquity of the angle of reflexion, its turbidness or limpidity, its depth, and the colour of the bottom.

The greater aptitude of water to reflect light in an acute angle, that is to say, in an oblique direction, than in an obtuse angle, or a direction approaching to the vertical, is a fact recorded by science. It may be easily recognised by observing the slight undulations on the surface of a pool or basin of water. As you look down upon the water at your feet, when standing on the margin, no light appears to be reflected from the level portion of the water, where it forms a right angle

appear much lighter when seen from a point some distance off; which effect is owing to the varying influence of the shade on the surface of the water, and of the colour of its bottom.

with your eye; but the slightest undulation throws off a faint flash of light, and shews at once the influence of an angle of incidence and reflexion somewhat more acute. On the other hand, the effect of an obtuse angle, with respect to the light which falls upon the water, shews itself in the dark colour of those waves with abrupt sides, which are suddenly raised by a strong wind; for since this effect takes place not less when the sky is of an uniform colour, than when one part of it is darker than another, it cannot be owing to the greater darkness of any particular portion of it reflected on the waves.

It is owing to the abundant reflexion of light in an oblique direction, that the images which are seen on the water beyond a certain angle are more distinct, and particularly brighter in their colours, than those which are reflected on the part of the water immediately before you.

To the same cause is owing the light appearance of smooth water in the distance, when it reflects the sky; for it is within a limited range only, where the dip of the eye is considerable, that the colour of the water begins to prevail over the reflected tints of the sky. This angle varies, according to the intensity of the reflected light. In a picture, where the horizon is placed low, the distance between it and the ground line being small, the eye falls little in looking at the latter,—at least, when the picture is viewed at a suitable distance: consequently the colour of the water can be but faintly shewn quite at the bottom of the picture. This point may present itself at a distance of five or six yards only, when the observer is stationed on a level with the water, and at more than one hundred, if his station be proportionately high; so that in a view taken from a bridge, or any other elevated point, a great deal of the colour of the water may, with propriety, be introduced even where the sky is reflected. But the quantity of light reflected in the distance will cause even turbid water to appear like clear water. The water which fills the ruts and depressions of a road after rain, reflects the sky at a distance of ten or fifteen paces, and cannot there be easily distinguished from limpid water.

With respect to the other circumstances connected with oblique reflexion of light, we will observe, that the depth of the water, as well as the nature and colour of its bottom, begin to disclose themselves about the same point where its colour becomes apparent, so that the same conditions which apply to the colour of the water, apply likewise to the darkness of tone, which is the result of depth; or, if shallow, to the appearance of the stones and weeds which cover the bed.

Reflexions of dark objects, by screening the light from the sky, shew forth alike the transparency of limpid water and the disturbed state of troubled water. The bottom of a shallow stream, though scarcely visible at a distance of seven or eight yards, where the sky is reflected, is still apparent at seventy or eighty, where trees or other dark objects cast their reflexions on the surface of the water, and deprive it of that of the sky.

The light thrown off from a shallow and light-coloured bottom, interferes very much with that reflected from the surface, and diminishes proportionately the distinctness of the reflexions. When this light colour of the objects forming the bed is combined with shallowness, and with an excessive transparency of the water, the light thrown off from the bottom is so great as to neutralize, almost entirely, the reflexions of the objects on shore. They appear like exceedingly dim shadows, of a light warm tint, and at times can scarcely be traced at all. This occurs in a striking manner on the margin of some of the Swiss lakes, where the water is shallow and highly transparent.

A dark-coloured bottom, as it reflects little or no light, leaves the image reflected from the surface of the water very perfect. Even in the vertical direction, the reflexions of objects on water over a dark bottom are distinct, though the quantity of light absorbed, and the little amount reflected, in this direction, renders them dull and heavy.

Two vessels, one black inside, the other white, filled with water, present the following differences in their reflexions. Objects seen in the dark vessel, at a depressed angle, shew their form distinct, but their colour very imperfectly so; light objects, which screen the bright sky, appearing very nearly as dark as the blackest object. The white colour may, however, be distinguished in the reflexion when exposed to light, and the folds of the drapery of a small plaster image are distinguishable. In a horizontal direction, the distinctness of the reflexion is considerably increased, and colour becomes tolerably distinct. Exposure of the object to sunshine produces a very great difference in the colour and distinctness of the reflexion. The red, yellow, and blue are very marked, and the reflexion of the trees lighted by the sun, seen in a slanting direction, seems perfect.

In the white vessel, the reflexion is exceedingly feeble, and there is scarcely any difference in the appearance of dark and light objects reflected in a direction approaching to the vertical; even bright colours are scarcely perceived. In a very oblique direction, however, they begin to appear, and if illumined by the sun, when the surface of the water is in the shade, they may be distinguished pretty readily from each other.

When the water is highly coloured, as in some lakes and rivers, the reflexion of the nearer objects takes, in a most decided manner, the colour of the water. The reflexion of a boat appears green on green water, and if the boat be very near you, and the water not deep, the reflexion of the oars, of the sail, and even of figures, will all be more or less green. It is only at a certain distance that these respective objects will begin to assume their natural colours.

Turbid Water.—The reflexion of objects here becomes enfeebled in proportion as the colour of the water itself is more predominant. This is relative to the power of the sun lighting the water as a body, and to the depression of the angle at which it is seen. The form of objects is, indeed, pretty distinct all over; but their colour is wanting: a grey or muddy colour is substituted. Boats blackened with pitch appear scarcely darker in the reflexion than those which are painted of a lighter colour; and from the lightest to the darkest objects, little else is perceived than gradations of shade, the colours nearest allied to those of the water appearing, however, to undergo less change than those differing widely from it. The blue seems completely changed in the reflexion: combined with the yellow colour of the water, it appears in some cases to produce a greenish tint. When, however, the sun shines brightly on the surrounding objects, and with little force on the water itself, their reflexion, even on murky water, acquires considerable strength and vivacity, producing a sprightly and pleasing effect.

But it is at a certain distance only that the colour of objects which are not strongly illumined begins to shew itself in the reflexion. Artists sometimes give to a turbid river in the distance light azure or greyish tints, congenial with the surrounding parts; but these tints, however correct, where the sky is reflected, should be extended with caution to those parts where the reflexion of objects on the banks is substituted to the bright reflexion of the sky. If the water be very thick and yellow, this local colour predominates even at great distances, and that of the objects is lost. Here the influence of sunshine on the water must be taken into consideration: it brings out powerfully the local colour of the water, and causes the reflexions of trees and houses to disappear almost entirely on yellow and turbid streams; whilst, on the contrary, the projected shadows of these buildings become powerful, and entirely change the character of the scene. This is the case in the yellow Tiber. On a sunny day the reflexions of the houses are exceedingly faint, but their shadows are predominant. In the shadows, however, the local colour of the water being less marked, the reflexion of the objects on the banks of the river here reappears, thus presenting the singular effect of a reflexion tolerably distinct on the shadow cast upon the water, but disappearing almost completely where that shadow ceases.

Although the appearance of shadows projected on the surface of the water belongs properly to the title *Shadows*, I will here observe, that they are the more intense (I am alluding particularly to those of clouds) as the water is more ruffled by the wind, and has a more decided colour. The shadows of clouds may be seen to cross a rough sea, with transitions of light and shade, almost, if not quite, as abrupt and marked as on an open country; but these shadows disappear almost entirely on a smooth surface reflecting much light from the sky; and it is only on a near point, where this bright reflexion is much lessened, that the shadows of objects on land begin to appear, their intensity being proportionate to the thickness and opacity of the water.

All objects are reflected more faintly on ruffled water; and this in proportion to the degree of agitation. Light objects lose part of their brilliancy, and black ones part of their darkness. Thus, all distinctions of tint and colour become lessened. The reflexions become elongated and diffused at the same time that they lose their colour. They present, generally speaking, long stripes, brightest near the object, but gradually fading off towards the lower extremity: but when the object is removed from the surface of the water, the brightest part of its reflexion corresponds pretty nearly with the point where its image would be reflected on the still water. The reflexion is also more extended than that of objects situated on the edge of the water. Objects in the distance, and at the same time little elevated above the water, present no apparent reflexion when the surface is ruffled; thus, the hulk of a distant vessel frequently shews no reflexion, whereas that of its sails is very apparent. Those objects which are reflected near the observer shew an increase in width more or less marked; but the consideration of this circumstance, here, would lead too far. Clouds reflected on the sea have, in most cases, the appearance of parallel streaks disposed vertically, unless when its surface be too rough for them to be reflected at all. These bands are very distinct when the

ripple is but slight, but become gradually less so with its increase. The brightness and apparent extent of the reflexions are not only proportionate to the size of the cloud, but also to its brilliancy; a small bright cloud producing a reflexion in appearance almost as marked and extended as one larger, but more dim. The situation of the cloud has likewise an influence proportionate to its elevation above the horizon.

It is, I believe, not unusual in painting to give to bright objects near the water, and particularly to the sails of vessels, reflexions having a relative distinctness and brilliancy too great for that of the clouds. I have noticed, in one large picture in the Louvre, that there was a very distinct and white reflexion of the sails of vessels, and none, or scarcely any, from large light clouds; but, I believe that in nature, the reflexion of the clouds generally supersedes that of smaller objects, unless when the ripple of the water is but very slight, and the smaller reflexions are, consequently, little extended from the objects producing them.

WAVES.

Waves afford a remarkable instance of symmetry or general conformity of shape, occasionally combined with great irregularity. They may be seen to extend for miles with the same monotonous repetition of form and colour; yet when they dash against the rocks, or when confined within a narrow compass, they seem to rage and boil, assuming appearances alternately pleasing and awful.

Form and Propagation.—The connexion between the forms of waves, and the causes which produce, develope, and impel them forward, is so intimate, that, in speaking of the former, it becomes almost indispensable to take a cursory view of the latter.

Waves are produced on the surface of water and other liquids, by the fall of any heavy body; by the motion of the same at the surface, or by wind. Although, in appearance, a considerable difference exists between the waves which are produced by wind, and those which arise from the sudden jerk or impulse of a solid body on one particular spot, the principles which govern their formation, maintenance, and progression, present, in both cases, considerable analogy; and are, indeed, to a certain extent, the same. The most important difference in this respect is, that in the one case the primitive impulse ceases as soon as it has been given, the progress of the waves being maintained by the impetus first acquired; whereas, in the other case, the action which at first produces them continues to support them throughout their career, or for an indefinite time.

Waves, which after being once set in motion, proceed uncontrolled by any foreign impulse, possess a tendency to form a series of rings or concentric circles round the point where the first impulse has been given. When the surface of the water is disturbed by the fall of a stone, this tendency remains unimpeded, and the rings are produced round the centre of motion; but in the case of a gust of wind which strikes the surface of the water on many points at the same time, many centres of motion are produced, and the tendency of incipient waves to constitute circles, is checked by the action of the wind, which continues to impel them forward in one uniform direction, with a force equal to that which first raised them. They are, moreover, supported on each side by contiguous waves raised from different centres, and which may partly prevent them from extending, and from becoming circular; for when a projecting earth-bank, or any other intervening object intercepts a portion of the waves, those which pass round the point extend and change their direction immediately after, forming segments of circles, which fill up the corner thus sheltered from the wind.

Similar effects take place with the large waves of the sea, when an artificial mole protects the basin which it encloses, from the immediate influence of the winds and waves without. From the narrowness of the entrance, a single wave, or perhaps a portion of a wave only, enters at a time into the recess or cove, the mouth of which becomes the centre of a series of annular waves, which extend in regular succession over the expanse of water before them, until they break upon the beach.

The waves caused by the wind present, from their very commencement, small segments of circles, which expand by degrees, and if the wind be partial, their general distribution presents a figure similar to a fan. When two waves come on a line, they often unite: they thus increase in length, and form parallel rows.

Another point of resemblance in different kinds of waves, presents itself in their motion, or rather in that of the water. Waves present, in appearance, ridges of water advancing in succession at an uniform speed. In reality, however, that which advances is the form only, and the motion of the water is far from being one of horizontal progression. From the result of experiments made in a glass trough, it appears that particles of water present, during the existence of waves, a combination of horizontal and vertical vibrations, describing segments of circles or ellipses. A cork or any other floating body, will exhibit that kind of motion only which takes place at the surface of the water: it consists in a succession of curvilinear oscillations, having an inclined angle with the surface of the water, and which is accompanied by a very slow horizontal progression.

The motion of any portion of water may be expressed by the positions it successively occupies, when met by a series of undulations, namely, the bottom of the first wave, its slope at different stages, its summit, its reverse and the bottom of the succeeding trough, when the same motion is repeated again and again, till the waves have fallen, or have ceased to traverse the same spot.

The speed, or progress of waves, is proportionate to their diameter, or to the interval from ridge to ridge. Thus, the waves produced by a falling body, proceed at equal intervals, and with an uniform speed, not even visibly diminishing as they begin to collapse. Their rate of progress, as well as their number, is determined only by the violence of the primitive impetus; whether produced by the weight of the falling body, or by the velocity of its motion. A small stone, or a slight jerk of any solid body, will give rise to two or three annular waves only, expanding at a very slow rate; whereas the fall of a heavy mass produces larger waves, proceeding at a rate proportionately greater, and increasing in numbers as they proceed. The agitation at the centre, which first gave them birth, dies away as soon as the whole series have been produced; the primitive force being entirely exhausted by the impetus imparted to the adjacent portions of the water.

Speaking of waves in general, their size or bulk is influenced by the following causes, namely, the extent of the water, its depth, and the force and duration of the causes producing them. Waves will increase in size to a certain extent, under the influence of a wind of uniform intensity; but it is probable that no duration of the wind would cause them to exceed certain dimensions, unless an increase in its strength were to take place. The size, or bulk of the waves thus raised, bears a certain proportion to the velocity of their motion, but, owing to the action of the wind, it is less definite than the relationship of size and speed of those waves which are produced by a single impulse only. Waves, when first raised by the wind, proceed not at uniform distances from each other, but with the intervals between them increasing as they advance; and it is the aggregate increase of these intervals, within a given space of time, which shews by how much the progress of the first wave has exceeded that of the last in the same period.

The general onward motion of the water subjected to the influence of wind, is very insignificant, and probably entirely superficial when the wind is moderate; but the extraordinary rise of tides, and overflowing of rivers, shew it to be considerable during violent and protracted storms. The want of depth checks the oscillations of the sublayers of water, and effects a diminution of the height of the waves at the surface. During storms this motion is said to extend with violence to so great a depth, that in some of the lakes of Switzerland the nets placed there by the fishermen from ten to fifteen fathoms below the surface are often found completely twisted and entangled after stormy weather. These nets, kept in a vertical position by means of leads and floats, form, at the bottom of the lakes, a fence from four to five feet high, and of considerable extent.

Breakers.—When the pressure exercised by wind on the waves does not exceed a certain limit, an increase of height and inclination is the only result; but when the progressively increasing velocity of the waves is deficient in keeping pace with the continuous impulse of the wind, the slope of the former becomes so rapid and precipitous as no longer to afford sufficient support to the summit or crest, which breaks off in portions, and falls in the shape of foam on the body of the wave. Breakers of this kind occur at any distance from land; they increase both in size and number with the strength of the wind, and seem to be more numerous when the latter blows in sudden gusts than when of long continuance, its strength being the same; as in the latter case, the waves being larger and their velocity proportionately greater, they afford less resistance to the wind. The increase in the number of breakers, when the direction of the tide is opposed to that of the wind, or when a river opposes a rapid current to its action, may be accounted for in a similar manner.

Another cause of breakers, almost independently of any immediate action of the wind or tide, is insufficiency of depth. Thus, breakers occur over banks, ridges, or a gently rising beach. When the inclination of the latter is very gradual, as is the case during low tides, the breakers will commence at a very considerable distance from the shore, and present an uninterrupted fall of the crest of the waves during the whole of their progress towards the beach, thus covering the sea in very stormy weather with a succession of foaming waves, to an extent sometimes considerably exceeding a mile, and which, to an observer situated on the beach, will even appear to reach the horizon. Breakers of this kind will sometimes appear in groups of three or four at various distances from the shore. This unequal disposition is probably occasioned by corresponding inequalities in the rise of the sandy bottom of the sea towards the coast. To a similar cause may, perhaps, be ascribed the three formidable breakers which, on the coast of Coromandel, form an almost impassable barrier to any other boats than those constructed by the natives for the express purpose.

It is less the obstacles which waves meet on a level, than those which are beneath the surface of the water, which determine the formation of breakers. Where rocks rise abruptly in deep water the waves dash against them without breaking forward; and although spray is thrown to a considerable height, either by the striking of the wave against the cliff, or by the shock of the next wave meeting the recoil of the former, little foam is produced. The waves present on such occasions great confusion; they have short but pointed ridges, angular forms, and precipitous sides.

When, however, the beach is steep without being rocky, presenting a bed of shingle, rising uniformly from a deep sea, the waves advance regularly towards it with their form entire; and, as they meet the retreating waters, they coil over in an almost symmetrical curve, or, stationary for a moment, as they swell with foam, fling the accumulated load upon the beach, covering it far and wide with a sheet of froth.

Generally speaking, it is to the nature of the bottom that the form and character of breakers is to be traced. Where there is a long and gradual ascent, the waves continue to break during their passage over it; where it is abrupt, there is but one billow corresponding to the sudden rise; where it is rugged, or uneven, the waves are tumultuous; and where it is smooth, they are regular.

In connexion with Painting.—Few objects require, so much as waves, selection and arrangement, and, indeed, all those advantages which result from well-combined effects, in order that the danger of monotony be avoided, and a pleasing result ensured.

However common and familiar, waves, nevertheless, take their place amongst those objects in nature which link together various impressions. Executed by a Vandervelde or a Vernet they mark the present aspect and the by-gone changes of the weather.

In one of Vernet's pictures at the Louvre, the sun is about to rise in a clear but not a cloudless sky; there is no swell, but the observer infers from a short curl of the wave that a breeze from the sea is not an unusual accompaniment of sunrise in the locality represented by the picture. In another sea-piece (the Fishery of the Thon), the motion of the boats, and the accumulation of waves of various sizes on each other, shew that the wind is brisk, and has continued so for some time. This appearance of the sea, connected with a very abundant draught of fishes, points out the weather best adapted to this kind of fishing.

Owing to the continuous repetition of the same forms, the representation of an agitated sea, in a bird's-eye view, is almost impracticable, unless at a height and distance where the form of the waves would disappear from sight. The same appearance of reduplication causes the small waves, on limited basins of water, to be unpicturesque, and very difficult to represent. Canaletto, nevertheless, has introduced them with a good effect in his canal pieces: the eye glances over them without being fatigued, or even observing any appearance of reduplication. Claude Lorraine has, indeed, in some of his marine pieces completely mastered the difficulty presented by a multitude of small waves; but he has diverted the attention of the observer with the effects of the sun reflected on the water, accompanied by an harmonious glow, which extends over the whole scene. By these artificial means, which the classical style of his composition and painting renders appropriate, Claude has overcome a difficulty, which Joseph Vernet has cautiously avoided.

A side view of waves presents difficulties in their distribution which do not occur in a front view, owing to the distant surface of the sea being in this last case more or less intercepted and broken by the foremost waves.

Large smooth waves, with variously inclined surfaces, have dark points or summits, which only become transparent when much attenuated, or about to break. The case is different with respect to the long waves seen from the beach in calm weather: they are dark throughout the whole of their surface before they break; but at that moment it is not a small portion only, but nearly the whole mass of the wave which becomes transparent at once. If, however, the sun shines upon the front of the wave, the colour of the water shews itself in its concave surface, with green or yellow tints.

The sea, at ebb tide, is generally represented with a low horizon: the waves are then low, and very extended, but the surface of the sea being much foreshortened, contracts the spaces between them, and thus compensates for their want of height.

The waves produced by fountains, although they generally start from one centre, are seldom completely annular, owing to the repercussion of the sides of the basin, and to continual changes in the fall of the spray. Those which disturb the surface of rivers, are frequently the result of variously combined causes, and cross each other at different angles, causing the surface to be very rough and agitated in some parts, and almost smooth in others; whilst elsewhere a twinkling of the waves bespeaks a shallow, or the conflicting impulses of the tide and wind. In more placid streams, a few circular and flowing streaks, which mark the eddies, alone disturb their tranquil surface.

Horizon.—The term, Horizon, when applied to the sea, seems to imply, pretty generally, the line which marks the transition from the water to the sky, and has, in consequence, a less extensive signification than when applied to landscapes in general, where the portion of the sky, bordering the earth, as also the most distant portion visible of the earth itself, may be said to belong to that part of the scene to which the term Horizon is occasionally applied. The horizon, such as it marks the boundary of the sea, forms a central line between the two. It will be hardly necessary to enter into the difference between this the apparent horizon, which varies with the position of the observer, and that designated by the name of Astronomical or True horizon. The latter supposes the plane on which the observer is standing, or rather one parallel to it, dividing the earth in its centre, to extend indefinitely, whereas the rotundity of the earth's surface causes a depression of the apparent horizon, which varies with the elevation of the observer.

The distance of the apparent horizon at sea, to an observer standing nearly on its level, that is to say, the eye being at an elevation of six feet, is, in round numbers, three miles: twenty-four feet give a distance of six miles; and a hundred feet, thirteen miles.

The vapour or mist of the atmosphere, by refracting the rays of light, and bending them towards the earth's surface, causes a portion of the sea to become visible considerably beyond the point where the natural horizon would be formed if the atmosphere were of an uniform density, and no refraction were to take place. The effect of this refraction is, therefore, to lessen the dip of the apparent horizon as compared with the true one.

An observer who, from a high mountain, discovers another one rising to a corresponding elevation from the horizon of the sea, may form an approximate idea of its depression, by observing how much would be required to raise the boundary line of the sea from the base to the summit of the distant mountain, which, being on the same level with himself, marks the situation of the true horizon.

Supposing the height of the observer to correspond with the mast of a vessel, the apparent height of the mast, situated on the more circumscribed horizon, would shew the dip at that point: which, however, being thirteen miles off, would probably render a ship too minute an object to be measured with the naked eye.

The very limited extent of a few miles, which marks the boundary of vision to an observer at sea, little corresponds with the grand ideas of expanse which are generally associated with the appearance of the ocean. There are very few land scenes of any extent which do not carry the view a great deal further; but in the aspect of the ocean, the entire absence of those objects which on land arrest the sight, and withdraw our attention from a mathematical line, marking distinctly the earth's convexity, leaves room for ideas of an elevated nature.* It is only from very lofty situations that the appearance of the sea is materially connected with those ideas of extent, of which it is so frequently taken as the image.

The sea generally appears rather darker at the horizon than elsewhere. From elevated situations, however, this effect disappears, as it does also during hazy weather, from the softening effects of the intervening atmosphere. When the sky is clear, and the sea rough with wind, the horizon presents a continuous and well-defined line.

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* Burke attributes this sublime idea which is raised at the sight of the ocean to the impressions of terror which are associated with it, affirming, that "terror is, in all cases whatsoever, either more openly or latently the ruling principle of the sublime."

The circumstance of the horizon rising almost to a level with the eye, appears natural from habit, but under unordinary circumstances this appearance seems extraordinary and improbable. When from a lofty cliff the more distant part of the sea is hidden by the mistiness of the atmosphere, the eye naturally falls upon some lower point, marked perhaps by a wind-streak, as the boundary of the sea; and it is not without sensations of astonishment that the white sail of a vessel is perceived through the dissipating mist, considerably above the level to which the observer, in his mind's eye, had conceived the horizon to extend.

Sometimes the position of the horizon becomes very dubious, if it does not disappear altogether, from the uniform colour of a clouded sky and of a sea perfectly calm. They are mutually reflected in perfect unison, and the two elements pass almost imperceptibly into each other.

Aspect of the Sea under various Influences.— Amongst the effects presented by the sea, some are nearly similar to those which appear on lakes and other large sheets of water, whilst in others no resemblance strikes the observer. Some of these differences, for instance, those which depend upon the turbid state of the sea near the coast, upon the green colour of the deep water, and upon the size of the waves, may be easily traced to their cause; whilst others are of so vague a nature, that it is not easy to discover whence they arise; and owing to the very indefinite and variable character of these effects, their origin often less deserves inquiry than those which, more constant in the manner of their appearance, apply to limited basins of water as well as to the sea.

When calm, the tints of the sea depend chiefly on those of the sky; these tints, however, are not representations of the objects which produce them, such as the clouds, intervals of blue sky, or the objects on shore; nor are they limited to a corresponding space on the water: but, owing to the unevenness of the surface, so generally prevalent at sea, even in still weather, they are diffused over a large space, melt into each other, and produce appearances which differ considerably from those of the sky. As the surface becomes rougher the difference between the effects exhibited by the sea and those of the sky increases in proportion, till, when the sea becomes agitated by a strong wind, the analogy between the upper and the lower half of the scene almost entirely disappears, and the result can scarcely be traced to its cause. Often opposite colours and contrasting effects appear in the same parts where, in calm weather, a more perfect reflexion of light produces unity of effect in the upper and lower parts of the prospect.

One of the chief points to be observed in the effects of calm weather is, what portion of the sky has the most influence on the general aspect and colour of the water. With a very slight motion of its surface, it is the portion of the sky not immediately above the horizon, but a little removed from it; for instance, from four or five degrees to ten or fifteen, which chiefly influences the general appearance of the water.*

The very white and luminous appearance of the sea happens generally during a calm, when a bright morning or evening sky is reflected on its surface. When the rising or setting sun is imbedded in the mist of the atmosphere, it throws a great deal of light on the portion of the sky above it, but very little on that bordering the horizon, which, being thus somewhat obscured, shews off in a marked manner the white appearance of the sea; the water then appears decidedly lighter than the sky from which its tint is borrowed.

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* This does not apply to the water as we look down upon it from above, but to its appearance at a certain distance, such as it would be introduced into a picture.

The brilliancy of the sky is, however, under ordinary circumstances, superior to that of the water; but the habit of seeing the brightest light above causes that on the water below to appear to exceed it whenever it becomes equal, or nearly so; thus producing an illusion as to the relative brilliancy of the two parts of the scene. By observing the effect through holes in a sheet of dark paper, a portion of the sky is found to be as light as the water, or even more so; and it is this portion, more or less elevated, according to the smoothness of the water, which chiefly influences its colour. This white appearance of the sea is, perhaps, generally more decided when the sun sets on shore behind the observer; since the portion of the sky immediately bordering the horizon of the sea is then darker, and produces, consequently, a greater contrast.

This principle, connected with the reflexion of light on the sea, occasionally gives rise to singular effects. The reflexion of a dark cloud, where the horizon is warm and luminous, partakes more of the tints of the horizontal sky than of those of the cloud.

In the accompanying plate, the surface of the sea being slightly uneven, borrows a general pale

Day & Haghe Lith.rs to the Queen

tint from the sky; to the right, this colour is modified by a cloud, which deprives the water of the reflexion of that portion of the sky which has most influence on its tint: consequently the reflexion of the warm portion of the sky near the horizon would there become conspicuous, as may be seen by the warm colour of the water beneath the cloud. To the left, low clouds border the horizon; but from their low situation and little extent they have no apparent influence, and the pale tint produced by the reflexion of the sky at large, there prevails. As, however, the water smoothens on the inclined beach, the reflexion of those distant clouds may be traced on the reverses of the waves; whereas, under the large cloud to the right, the same surfaces of the waves reflect the warm tints which there appear on the horizon: thus the order which reflexions assume on smooth water is considerably modified. The sides of the waves facing the observer owe their dark bluish tint to their abrupt slope, and to the reflexion of a part of the sky darker than any of the portions which appear in the view.

Were the faces of the same waves to be lighted up in front by the setting sun, the colour of the water would then be very conspicuous, and the effect greatly altered.

The gradations of tints from the horizon upwards, which precede or accompany the rising sun, and are so beautifully repeated in reverse order by the polished surfaces of rivers and lakes, seldom appear on the sea. However, the gulfs and inlets of the Mediterranean, sheltered by mountainous coasts, or by numerous islands, and free from the influence of currents, sometimes present a state of calm, which may be compared to that of a lake. I have seen the Gulf of Lepanto when its surface was perfectly even, and having a mirror-like appearance; every mountain, at a distance of ten or fifteen miles, was reflected, and a very light and hazy cloud might be traced on the blue surface beneath, as in the vault above.

At Syra, the sea, encompassed on every side by islands, may occasionally be seen in a state of rest, which admits of a beautiful reflexion of every surrounding object. During a calm at evening, the boats seemed to glide over a transparent mirror, and the wind-streaks appeared like light vapours floating in the air.

Undulations of the water, without wind, reflect the tints above with great uncertainty; they have no distinct edge, but seem to produce vibrated reflexions, having great softness. A mist stealing over the sky, or a change in the colour of the clouds, is at once apparent on these smooth waves, more particularly on the corresponding faces of them.

A brisk wind arises, and at once ploughs up the whole surface of the water. We then observe on a clear day, that deep azure colour to which the most beautiful of those used in painting owes its name; and it contrasts with admirable effect with the white or yellowish cliffs, with the sails of vessels, or with the luxuriant verdure of meridian slopes. The same deep blue colour appears in the Swiss and Styrian lakes.

The ultramarine blue of the Mediterranean is not limited, like the blue colour of the ocean, to certain effects or contrasts of colour; it shews itself in the calm deep water by the side of the vessel, or at the foot of the rock on which you stand, as well as on the distant parts ruffled by the wind. The blue, sometimes of a light, sometimes of a darker shade, has, in appearance, the intenseness of a dye, and resembles perfectly a strong solution of sulphate of copper; but its transparency is such, that a stone dropped into it is distinctly seen to a depth of several fathoms, as it falls illuminated by the sun.

The blue colour seems to be increased by the reflexion from a pure sky, but not to be dependent on it alone. Patches of blue, in a cloudy sky, are reflected by every wave having the appropriate angle, and the water becomes partially tinged with that colour. But if the sky be completely overcast, though luminous, the blue tint is more intense in the reflexion of the boats, of the oars, and under the steep rocks on shore, than where much light is reflected; its grey tint neutralizing that of the water. The blue colour of the water is proportionate to the darkness of the object reflected in it, and to the abundance of general light which penetrates into its interior: by proceeding so far under the cavities of the rocks, that their shadow extends over a considerable portion of the water, and deprives it of light, the blue tints begin to decrease; and during the twilight of morning or evening, the blue colour nearly disappears, and the reflexion of the oars, etc. becomes nearly black. But where, as in the Grotta azzurra, of the island of Capri, the light which has penetrated into the interior of the water is great, and the dark vaults of the cave can form no reflexion on the water's surface, capable of neutralizing its colour, the latter becomes exceedingly intense, and communicates itself to the roof and walls of the cave.

During a storm these beautiful tints of the Mediterranean entirely disappear, the water borrows its colour from the dark grey atmosphere, and puts on exactly the same appearances as we are accustomed to observe in the ocean, under like circumstances.

The colour of the Black Sea is darker and duller than that of the Mediterranean. A fresh wind prevailing, its general appearance, as far as the horizon, was approaching to black, though the sky overhead was pale. Its dark colour is attributed chiefly to that of the sand or mud at the bottom. The waves during storms are short, pointed, and abrupt.

Returning to the ocean, I have observed a breeze off the land to produce on the sea a uniform grey tint, which is cold compared with that of the sky. I believe this to result from the reflexion of a part of the sky, higher than that which has most influence when the surface of the sea is more even. When, as sometimes happens, the horizon of the sky is warm, this cold raw tint of the sea forms with it a hard and disagreeable contrast.

It is principally during a strong sea breeze that the green colour of the sea is most apparent, varying in its nature with the strength and direction of the lights and other causes, many of which appear accidental, or cannot be directly traced, so that a great deal may be left to taste in representing these effects,—a remark made by Gilpin in describing the effects peculiar to lakes, but which applies more forcibly to those of the sea. Nevertheless, the influence of dark clouds, and of the light spaces between, is, in general, very apparent, even on rough water. Its colour deepens under the combined reflexion and shadow of the darkest clouds, and the modifications of shade on the water generally follow those presented by the sky. But here a considerable difference presents itself, according as the situation of the observer be elevated or low: when elevated, several modifications of tint will succeed to each other from the shore to the horizon of the sea; whereas, when he is situated on the beach, his eye seldom meets in the same direction more than one marked transition, the horizon of the sea generally appearing, from this last point, darker than its surface at large. This is a point which, perhaps, could be duly appreciated only by observing nature. When the observer is situated low, the extent of the sea becomes so limited, that the nearer clouds cast their shadow upon it, and the portions of the sea which might be lighted by the intervals of sky, beyond these first clouds, are hidden from view. By ascending, however, more distant portions successively appear, variously shadowed or illumined; but even then, unless the elevation be very considerable, a dark horizon does not result from the clouds immediately above it, but from those which succeed a little higher in the sky, after an interval of perhaps five or six degrees. In the distance, the influence of these clouds is limited to a corresponding extent on the water, but as they become nearer, their reflexion, as well as that of the clear spaces between them, becomes more elongated. Thus, the advance of their influence on the water is much more rapid than that of the clouds themselves, and when once they have attained a certain elevation, or distance, their reflexion spreads with great rapidity down to the shore.

The shadows of misty clouds in a thick atmosphere are scarcely distinguishable from their reflexions, and produce many gradations of tint on the surface of the sea. These shadows will sometimes appear to exceed in darkness the clouds which produce them, and the luminous portions will here and there present tints which the sky does not exhibit. The fact is, that the surface of the water reflects bright portions of the sky hidden to the observer by intervening clouds. Their shadow, which is quite distinct from their reflexion, when they are surrounded by a clear and sunny atmosphere, seems to mingle with it when the clouds are thick and the atmosphere hazy. The surface of the sea consequently becomes darkened in some parts to an unusual degree, apparently by the combined influence of reflexion and shadows.

The changes in the appearance of the water, which are produced by winds, generally extend horizontally, and not vertically, as does the reflexion of the clouds, and their appearance is without reference to the state of the sky above them.

The colour of the sea seems to depend upon a combination of circumstances; and perhaps it would require more examples than I have been able to collect, in order to establish any thing like a general rule. I have observed the green colour to be deeper when the bright sky was closed in with clouds, and much shadowed by them, than when the sky was bright at the horizon. This last case produces a dark sea with a distinct and marked boundary. The vessels on the horizon being darkened, probably, by the same cause which obscures the sea, detach themselves neat and distinct from the light back-ground, and being inclined by the wind which generally prevails with a clear horizon, become unusually interesting objects. The glaring reflexion of the sun, shining on the sea through the clouds, seems to produce, by the effects of contrast on the adjoining parts, a very dark and opaque colour almost resembling land. The effect here is more one of chiar'-oscuro than of colour, as is the case whenever there are strong partial lights. Waves reflecting a good deal of light from the sides exposed to the sky are opaque and heavy, and their outline is very hard. They have sometimes this appearance when, the wind having abated, their surfaces become polished, though irregular. The direct light from the sun brings out, it is true, the green tint, but it is when it illumines the water as a body, and not when thrown off with vibrated reflexions, as from mirrors.

I have frequently remarked the bright green of a rough sea illumined by the sun: it was more conspicuous in a direction at right angles with, than in one corresponding to, that of the sun, whose light, with its accompanying haze, softens the tints of the water.

I have observed the colour of the sea to change with great rapidity. The reflexion of a dark cloud covering the distance, combined with a strong light upon the sea from an opposite quarter, produced a deep and beautiful olive colour. According to M. Arago, the green colour of the ruffled sea is owing to the mingling of the yellow light transmitted into the interior of the water with the blue light reflected from its surface; this combination of the two being produced by the prismatic refraction of the waves.*

The very dark appearance of water which usually precedes the storm does not depend upon the size of the wave; it is equally apparent on small lakes and rivers, and depends upon the sharpness and excessive inclination of the wave, which is the result of a sudden gust of wind; the portions which become intensely dark are little extended, unless they depend at the same time on the effects of light and shade. A warm brown or yellowish tint is produced by these sudden gusts of wind when the water is turbid.

The small waves which are immediately raised by the wind on the surface of large ones have the effect of rounding off their sharp edges, and of softening their appearance. Hence the soft harmonious appearance of the sea during violent gales. The disturbed state of the water to great distances from shore, the abundance of foam, and the grey mistiness of the clouds during stormy weather, farther contribute to give to the sea during storms a general pale colour. Its boundary at the horizon is diffused and often entirely concealed by the rain and vapour. In many cases, the impetuosity of the tempest cannot be judged of by the size of the waves: this depends too much upon incidents of all kinds; sometimes the waves do not appear high from the shore, whilst the tossing of the vessels shews that the sea runs very high without. At Weymouth, I have seen larger waves produced on the shore by certain combinations of the tides than by violent gales unaccompanied by such circumstances. The spray raised by the wind from the summit of the waves, and whirled, together with the loose sand on shore, to a distance, and other incidents characteristic of storms, did not escape Leonardo's observation. (See description of *Storms*, at the end of the volume.)

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* See Professor Forbes's Paper on the Colours of the Atmosphere, p. 385.

Let us return to some of the effects which appear on a less agitated sea. The clearing up of a mist will produce, on the water nearly smooth, blue tints, very light, but beautifully soft and delicate. It should again be observed, that a bright cloud like a luminous sky, near the horizon, has very little effect on the water when the sky is open above; but its influence on the water becomes apparent in proportion as the sky above is the more obscured by clouds; the red and yellow tints of the horizon will then be reflected, with greater or less brilliancy, by certain edges and faces of the waves, possessing momentarily the true angular incidence; whilst the opposite sides of the waves may be seen here and there to reflect brown and blue tints from other parts of the sky. A similar effect is produced when the superior portion of the sky is hidden by the sail of a boat, and the light from the lower portion, glowing with the sunset, is admitted between the sail and the deck. In this case, the beautiful warm touches of light which appear to skirt the wave, under the boat's shelter, are the more remarkable for their being concentrated on one spot (See accompanying plate).

The reflexion both of the sun and moon on the waves of the sea, is, when suitably modified, greatly available to the effect of a sea-piece. The flaming brilliancy of the sun reflected in full splendour on the water, cannot indeed be introduced without restrictions. It must either be represented flashing here and there, as it breaks through the intervals of the clouds, or with that milder stream of light which the sun sheds upon the water when about to sink below the horizon. This is the form in which Claude so frequently introduces it with tasteful, but not always natural, effects.

With an opaque atmosphere, it is not till the sun has attained an altitude of three or four degrees, and got clear of the mist, that its light

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W L Walton lithount.

C. Hullmandel's Patent.

begins to shew upon the water; but on a clear morning, a faint reflexion coloured with the sun's warmth appears on the agitated sea, almost as soon as the globe of the sun is seen entire above the horizon. The reflexion then forms a narrow stream of light, gradually widening towards the lower extremity, but growing fainter towards the horizon, to which it does not extend. As the sun ascends, its reflexion progressively widens, and from being narrower and fainter towards the horizon, it there becomes widest and most brilliant. Goethe has remarked, in his "Italiënische Reise," the increased brilliancy of the reflexion of the sun and moon towards the horizon, but has not alluded to the progressive changes which take place in the form and extent of those reflexions, with the increasing altitude of the sun and motion of the sea. Both these circumstances concur in spreading the reflexions of the sun and moon over a vast extent of water. It needs scarcely be said that their brilliancy is proportionately diminished; but the reflexion of the sun shines with great force, even when the roughness of the sea is such that all other influences on its surface are lost.

The unequal and partial agitation of the sea contributes not less than the interposition of clouds, to vary the form of the sun's reflexion; it disappears altogether where the surface is smooth, and suddenly spreads horizontally where it becomes agitated. This happens generally towards the horizon, where the sea is most rough, and it sometimes occupies a very considerable portion of it. The glare of the sun, where rendered partial by the interference of clouds, has a pale and almost bluish tint, but when extending, without interruption, from the shore to the horizon, I have seen it take a warm and yellowish tint in the distance. Its usual colour corresponds with that of the sun; it is, perhaps, somewhat warmer when the sun is low, the colour of light being more apparent where its force is diminished by reflexion. Where the sea is very luminous, the adjacent parts, but more particularly the sky above, appear darkened by contrast. Its influence on the latter gives the impression of a shadow, having the shape of a cone more or less depressed.

Joseph Vernet generally avails himself of the reflexion of the moon upon the sea, in his night-pieces. The prevailing darkness renders these strong accidental lights more necessary in such scenes, and their effect greatly surpasses in beauty those which depend upon the reflexion of the sun. The same principles of extension apply to either, but the gradual change of form, from the band tapering towards the horizon to the cone spreading in the same part, and with its apex reversed, is traced more distinctly in the reflexion of the moon. The most picturesque and pleasing effects appear to be those which result from an elevation of the moon from 10° to 15°, with a calm sea, roughened here and there; the light on the water is then alone powerful, but it is agreeably disseminated. When the moon has attained a much greater elevation, its light becomes very much enfeebled, and at last disappears almost entirely.

Whilst most effects are the more valued for being scarce, there are some which owe their interest to their very frequency. Association and habit render interesting those most familiar effects peculiar to the mouth of the Thames, of the Severn, and other rivers. When smooth, the reflexions from the sky greatly diminish the muddy and yellow appearance of the water on every distant point, and counteract those ill effects which would otherwise arise from so great an extent of troubled water: when roughened by the wind and tides, the reflexion of the sky disappears, in great part, and it is then that the scenes presented by estuaries and rivers derive, from the great mass of turbid water, a decided local character.

On the open coast the sea will, at times, become turbid, assuming a yellowish grey colour.

It contrasts with the clear blue sea in the distance. It generally reaches from about half a mile to a mile from the shore. It may also be seen to advance nearer to the land, as the tide rises, in a distinct and uniform line, but more frequently the boundary is less determined; or the water will preserve its transparency and green colour to the beach, which is the usual result of continuous land-winds.

It is not one of the least advantages of the Mediterranean that its coast scenery is enhanced by the association of pure transparent water. On one occasion only I have observed the contrary to be the case. The turbid water filled a great part of the channel between the coast of France and the islands of Hières, in the neighbourhood of Toulon. A distinct line marked the boundary between the limpid and impure water, occasioned, it was said, by the abundance of rain, which washed down slimy matter from the shore.

Notwithstanding many disadvantages, scenes on turbid water afford some pointed effects; the interest of which is derived, in a great measure, from the colour of the water, varied by transitions from shadow to sunshine. The shadows incline to blue, and the more so as they become more distant in the scene; whereas the reflexions are of a yellowish grey, the blue light from the sky being here intercepted, whilst the influence of the sun on the colour of the water is in full force. There is also a progressive change in the colour of the water from the nearer part of its surface, where the sun has considerable influence, to the more distant parts, where the reflexion of the sky is predominant; and on the first plane of the picture this passage of tints forms a sudden transition from one side of a wave to the other. Where the shadow and the reflexion of the smoke of steamers cross each other, the water being deprived at once of the pale light from the sky, and of that derived from the sun, its colour is due principally to that of the smoke itself; and it is darker than either the reflexion or the shadow, taken separately.

LAKES.

Lakes afford a remarkable instance of the power of the imagination to magnify the beauties of any scene. A lake is a mere expanse of water, to which a form has been given from its being circumscribed by a definite boundary on every side. This expanse of water presents far less variety than would do the same extent of surface filled up with the objects which generally compose a landscape. Nevertheless, the scene gains an immense additional interest from its presence; it all but absorbs that of the mountains, woods, and hamlets, which are scattered around. The connexion between the real and the borrowed attractions of the lake is so intimate, that it would be difficult to say whether it is the water or the surrounding scenery which supplies the greatest degree of interest, and forms the chief portion of the picture. What is it that gives a distinctive character to a lake of Switzerland, Italy, or Scotland? Is it not the peculiar cast of the scenery, or the appearance, form, and style of every object on its banks? Nevertheless the lake, the sheet of water, remains predominant; it gives a name to the locality. Whether its surface be beautifully varied with calm and motion, whether it reflect the precise image of every surrounding object, or present the dull and uniform grey colour which sometimes results from a steady wind,—the charm which so intimately associates itself with the idea of a lake, remains almost the same. It is not necessary that a considerable extent of water should be discovered at once, in order that the pleasing ideas connected with it may be produced; scarcely do you perceive some narrow streak of white in the hollow of the mountains, but a variety of impressions at once suggest themselves, and widen the little shining speck into a new scene of beauty and placid enjoyment.

The difference which presents itself in the character of lakes has a decided connexion with their situation. On the summit of lofty chains and ridges, numerous small lakes are formed, either in the hollows surrounded by an amphitheatre of peaks, or on the plateaux and passes of the mountains. These lakes are remarkable for their wildness.

Next may be mentioned that class of lakes which are formed at the foot of the mountains. They commence at a point more or less advanced in the interior of the valleys, whence they extend, amongst mountains gradually lessening in height, towards the plain. Lakes of this kind are large, sinuous, and sometimes ramified, and their scenery is more romantic and of a more varied character than that presented by any other kind of lake. Immense precipices frequently close in the extremity the most advanced into the mountains, whereas the portion of the lake which extends towards the more open country is encompassed by gently rising hills, often smiling with a perfection of rural beauty which fertility, situation, and agricultural industry, unite in producing; and the most pleasing effects generally result from the contrast of this highly finished portion of the scene, with the stern majesty of the mountains rising beyond.

The fiords of Norway bear some resemblance to these lakes, since they penetrate amid the inferior ramifications of the mountains almost to the foot of the main chain; but instead of being bounded at the other extremity by a plain, they open into the sea, which greatly modifies their character in that part.

A fourth class of lakes occurs in more open, or, at least, less mountainous countries, but their situation bears no apparent reference to the principal chains of mountains. As examples of these lakes with open shores, removed to some distance from the main ridge of mountains, may be mentioned those of Wetter and Wenner, in Sweden, and those of Trasimene, Nemi, &c. in Italy.

Small lakes afford the best examples of water in its most tranquil state: nowhere does the image of stillness and solitude present itself more strikingly. The precise representation of every external detail marks impressively the repose of the element which reflects them,—a repose which a breath of air, the falling of a leaf, or the dip of a moth's wing, would often suffice to disturb. The wind-streaks which gently disturb the tranquil surface of water diversify most agreeably the polished surface of a lake. They do not uniformly come out in light upon the ground-colour of the water, as they are, perhaps too frequently, made to do in paintings. The relative colour of the ripple and of the smooth surface depends upon circumstances. When a clear sky is reflected, the ripple forms on the distant water bands of a bluish grey colour, darker than the surrounding parts, but on a nearer point, the ripple is often of a lighter colour than the smooth surface, as it always is where it traverses the dark reflexions of mountains and of lesser objects on the banks. A light colour is often employed indifferently to represent wind-streaks in every part of an expanse of water, but it is evident that where the brightest part of the sky is reflected by the smooth surface, the ripple itself, which reflects a different part of the sky, must be less bright, and cannot be represented by a light colour. The narrow horizontal streaks appear narrow in the distance only; and on the nearer parts of the water, the ripple assumes various and irregular shapes. The reflexion of luminous clouds sometimes shews faintly on the wind-streaks or partial ripple; but it lessens, or disappears entirely, with an increased degree of agitation.

The comparison of lakes with the sea presents striking differences in the nature of the shore, buildings, ports, shipping, &c.; as also in some general effects, such as arise from the tides, or from the state of the weather. The shores of lakes present cliffs, or vertical rocks; but they are generally broken, or at least interrupted at intervals by wooded slopes, and they generally fall perpendicularly into the water; whereas the shores of the ocean present cliffs of a much longer extent, with a beach beneath them. The rocks bordering the lakes are seldom scooped out into caves and hollows by the waves, or they are so only to a very limited extent.

A great difference is observed in the character of the storms. In the lake storm, there is a greater show of effect and brilliancy of colouring, and less of that dreary haziness which prevails in the tempest at sea, which seems to cast a gloom over the scene, and an awful incertitude as to the issue of the event. The waves differ considerably in their form and break; they are shorter, more irregular, and pointed, which may be owing partly to the limited extent in which they are formed, partly to the greater lightness of the water, which causes them to be raised more suddenly, and with sharper edges, by a wind of equal strength. The quantity of foam produced is likewise very small. The differences which occur in the tint or aspect of the water depend in a great measure upon the large masses which are reflected in lakes.

The colour of the lake water, when perfectly transparent, as it frequently is, presents a considerable analogy with that of the sea uninfluenced by the tides and shallows. With a clear sky, the ultramarine tint becomes very conspicuous on the ripple of a lake where the mountains are not reflected; but the abundance of verdure reflected on its surface from its lofty banks often gives a marked predominance to the green tint, and the mingling of the colours, which results from the agitation of the water, often causes the berry tint to extend over the whole surface of the lake. Where the bottom is shallow, and radiates light to the surface, the green colour of the water is added to that of the vegetation reflected upon it, and it acquires sometimes a remarkable degree of intensity; but in deep water, all the light which has penetrated into the surface appears to be absorbed. The sky at the zenith darkens into black, and the reflexion of every object becomes more gloomy as the eye lowers down, or traces the reflexion from the margin of the lake to its centre. The reflexion of a wall of rock, or of a similar object, which appears scarcely to differ from the object itself at its base, becomes darkened at a distance from it, and, at a very inclined angle, presents dark stripes on the reverses of the waves.

From an elevated situation, from an adjoining mountain for instance, the extent of a lake becomes so much contracted in appearance, that a slight agitation of the atmosphere suffices to spread the mingled reflexions of the sky and mountains over its entire surface. The lake then presents an uniform colour throughout, which is generally a bluish green. The deep frame presented by the surrounding mountains contrasts with this its peculiar colour, and gives it still further relief. Lakes seen under these circumstances have something of the appearance given to them in maps and models, where a bluish green tint has been employed to represent every liquid surface. How completely altered is the scene, if the lake, instead of being shut in by dark precipices, and seen from a position approaching to the vertical, be viewed from its margin! The tints are less warm, they are of a pale slaty colour, and incline perhaps more to the blue, and less to the green than the tints of the sea under similar circumstances.

RIVERS.

Connexion between distant countries is one of the first impressions suggested by the appearance of a river. This comprehensive thought fills the mind of the observer who, from a commanding situation, discovers its mazes receding into distant plains, winding round the foot of eminences, or washing the walls of scattered towns; and when he descends to its banks to enjoy a nearer view, the mingled aspect of boats and vessels, some belonging to inland places, others to the sea, maintains, and perhaps strengthens, the first impression, that the river is a thoroughfare of nature, connecting nations together by mutual trade and intercourse.

The shores, strewed with the stores and produce of various climes, and animated with groups differing in costume and manners, present scenes of the most picturesque character to those who navigate the stream, or follow its banks. Even the inland wanderer sees them in his fancy, when, in the solitary recesses of the landscape, a sail suddenly emerges from the concealment of a wood, and seemingly glides over the fields and meadows.

Large rivers have generally low banks, and are seldom seen to bathe the foot of very lofty mountains. This is not the result of chance, but of the influence of the natural flow of waters, in connexion with the form and elevation of the continents. The waters of the large rivers are gathered together amongst the mountains of the first class. They traverse their valleys in the form of torrents, but do not become large rivers till they issue forth into the plains, of which they occupy the lowest levels, kept at a distance from the main groups of mountains by the gradual rising of the land towards them. In their course, however, they unavoidably meet with mountains of inferior height, through which they either wear or force their way. Of this, the passage of the Rhine through the mountains of Nassau, that of the Danube through those of Bohemia and Servia, are examples. Owing to these causes, the scenery bordering wide rivers is, in general, mild, and in harmony with the placid character of the stream.

The river, unlike the sea, does not unnecessarily encroach upon the eminence, but yielding, when it meets resistance, seeks a channel where it is least contested, threading its winding course through the valleys, and intersecting the plain with its sinuosities. There are, however, exceptions; the Danube, after being swollen by the waters of the Drave and Save, assumes a course which the lesser eminences can neither bend nor resist. The might of the stream here prevails. It rolls onward, notwithstanding such natural impediments as would turn aside streams less powerful. As the traveller proceeds farther down the stream, the erosive effects of the water become more and more conspicuous. The banks of the river increase in height, and the shores of Servia form, here and there, cliffs somewhat resembling those which border the ocean. In Hungary, the villages either skirt the summits of the high banks, or are built under their shelter, where they appear like rows of very diminutive huts. A deep chasm affords an opening from the river to the interior of the country; and here is generally collected a picturesque assemblage of boats, carts, fishermen, and peasants.

The influence of the melting of the snow and of rain extends to distant plains; it shews itself in the fluctuating course of the rivers; new branches are formed, others disappear, and the course of the river is choked up with numerous islands of various sizes. In the Danube, these islands, and the flat shores on either side, are covered with thick woods of the poplar or birch, which entirely screen the country beyond, and give a marked character to the scene. The tug-horses cross the arms of the river, sometimes swimming, and roused to exertion by the loud shouts of the men, which echo from shore to shore in these lonely parts. These horses, many in number, are generally four abreast, and are attended by several men. Three or four boats are attached to the same rope, at a great distance from the horses; they are shorter and wider than the boats of the Rhine, with the merchandise piled up, on the top of which is a platform, raised towards the extremities, from which the boat is steered with long oars fixed to a pivot, and acting as a lever.

Owing to the want of lakes, which might receive and discharge by degrees the accumulated waters of the rain and snow, some of the rivers of Italy have a more disastrous course, their stony beds having an extent most disproportionate to the usual size of the stream. Of this kind are the Po and the Dora, and several torrents of the Apennines, some of which, in the rough seasons, scour the entire bed of the valleys through which they flow, and confine the inhabitants to the slopes of the mountains.

In some parts of Greece, the torrents have a distinct character; the soil of the valleys, which is light, has often been deeply furrowed by the streams. The form of these narrow channels is irregular; their sides are abrupt, and only here and there accessible. Steep mule-tracks lead down to these hollows, either to traverse the main stream of the valley, or the tributaries which pour into it from the mountain side, and here and there interrupt the road with a deep trench. The summit of the sandy banks is crested with clumps of arbutus, laurel, and myrtle, or with the climbing fig; and the interstices of the clefts are filled up with the oleander and other odoriferous shrubs, whose rich green, and lively blossoms, contrast with the barrenness of the sandy rocks.

WATERFALLS.

In waterfalls, so great a diversity of characters presents itself, from the foaming cataract to the silvery thread which scarce marks its rapid course down the steep precipice, that it is difficult alike to assign to each of them a fixed station in the landscape, or to generalize their features.

Some waterfalls excite astonishment by their magnitude, their volume, or their elevation: these, like volcanoes and glaciers, rank amongst the shows of nature; and the imitations of them can hardly be otherwise than feeble and distant resemblances. For this reason, painters seldom introduce them into their landscapes, particularly in compositions. They generally prefer such waterfalls as are remarkable for their picturesqueness, or some peculiar feature, to those which are imposing, from their height or magnitude. These last become interesting, only as faithful representations of nature; and the more extraordinary they are, the more will precision and correctness in the imitation be appreciated. The knowledge of their being facts, affords some degree of interest, and awakens a pleasing desire to visit the originals. We do not readily lend our imagination to embellish the inventions of others; but when aware that an object which we see represented does exist, our natural disposition to magnify and to improve, is liberally indulged on the objects before us. Representations of cascades require, particularly, this buoyancy of the imagination; for, how far would the imitation fall short of the original, were not the motion and murmur of the waterfall, though impossible to represent, at least suggested to the mind! The ever-varying form of the spray, at times darting forward, at times gently gliding down the face of the rock, may perhaps be partly indicated. These, and many other associations, characteristic of waterfalls, render them almost living objects in the landscape. Figures are, perhaps, less required, where the white foam of the cascade glitters through the trees, and affords an image of ceaseless motion.

When the cascade is very lofty, the influence of gales, and even of light winds, is very apparent in the deviation of the column of water from the perpendicular. In the Staubbach, this deviation, judging from the traces left by the water on the rock, must amount to at least two or three hundred feet at the foot of the fall; and it sometimes takes place so rapidly, as to preclude all possibility of escape to persons venturing near.

But a more important point in the features of a waterfall, is the successive change of form apparent in the jets of spray,—small when they first fall from the brow of the rock, but widening as they descend, and becoming, at the same time, more diffused and lighter in their appearance from the increasing resistance of the air; and by placing them at unequal distances, at times indeed running into each other, their racing progress may be partly shewn.

The effects of the gale, caused by the fall of water, appear in a very decided manner on the surrounding vegetation. The waving of the trees, their branches and leaves thrown back, the herbs and blades of grass bent to the ground, or driven confusedly in various directions, and other similar incidents, however trifling, are not without their merits, as a means of imitating nature. There are cases, in which the beautiful is attainable only by deviating from the direct, and, as it were, the beaten track. A waterfall without those little episodes, which its connexion with the surrounding objects naturally introduces, would be little more than a blank in the picture,—an object to be avoided rather than sought after.

The differences observable in waterfalls do not, however, depend only upon their connexion with the objects which surround them. Close observation shews a considerable difference in almost every waterfall, depending on the manner in which the water is thrown forward, or divided in its anterior course. In some, the sheet of water spreads like a fan in its descent,—in others, it falls perpendicularly, with parallel sides. Sometimes, also, it converges towards the bottom of the fall. The masses of foam present various shapes; sometimes most irregular and complicated. When regular, they form semicircles, resembling waves, becoming more distinct and perfect in shape towards the bottom of the fall; whilst the intervening space, from wave to wave, likewise increases as they descend. Elsewhere, masses of an elongated form are imbedded in the spray. From a near point the eye penetrates into the mass, and the drops may be seen falling in distinct beds, one behind another, with different degrees of rapidity. The better to observe this, the eye should follow the particles in their descent, instead of fixing itself on one point of the fall: in a large waterfall it is a singular and somewhat bewildering scene.

The superior part of a waterfall appears, generally, whiter than the inferior parts of the same, since, owing to their velocity, the drops become farther apart from each other as they descend. This is particularly apparent where there is but a scanty supply of water: the torrent itself, if much broken before reaching the verge of the rock, will then appear more white than during the lower part of its perpendicular descent.

The clustered appearance of the descending column of foam generally results from the irregular and precipitate motion of the torrent previous to the fall, causing the water rather to be thrown off in portions, than to descend in one continuous sheet; but when a cascade exceeds some hundred feet, the collecting of the spray into wreaths or jets seems to be owing to the resistance of the atmosphere, and they acquire a different form. A waterfall, having an elevation of 600 or 700 feet, at the extremity of the valley of Fusch, near the Pinzgau, in the district of

Salzburg, presents the following characters:—The jets which, for the greater part, entirely clear the rock, become more separate and distinct from each other as they descend. In some places they are thin, and almost broken; elsewhere they again collect, forming a sharp point, or knot: this takes place almost to the foot of the fall. Their general appearance mostly resembles that of a succession of rockets, shot downwards; but in one of the falls they are more irregular, and wreaths of vapour are twisted back in various directions, doubtless from the resistance of the air. The spray, or rather vapour, begins to form at about half the descent, presenting a broad veil before the rock, and softening its colour; but the far greater portion is formed at the foot of the fall, and is carried away by the wind to a considerable distance. A slender thread of water, scarcely seen in its descent, forms a dash of white here and there against the projecting ledges.

In the far greater number of cases, it is at the foot of the waterfall that spray and vapour are produced. They sometimes occur in so great an abundance, as to become one of the chief attractions of the scene, especially when the sun, playing on the drops, exhibits the rainbow, or a pencil of radiating beams, or paints with yellowish tints a portion of the spray. The quantity of spray produced is not proportionate to the height alone of the waterfall: it is more influenced by the volume of water. A fall of moderate height will produce a vast quantity of spray, if projected with force against a rock, and it will sometimes rise to an elevation considerably greater than the fall itself. The mist remains even, for a time, suspended in the air, and appears like a light cloud, where, emerging from the shade, it catches the direct light from the sun.

When abundant, the spray presents innumerable wreaths, quite distinguishable from each other, and impelled rapidly forward, with varying and sinuous motion. A beautiful indistinctness grows over the objects at the foot of the fall, the increasing paleness of which marks their distance behind the spray.

When the great cascade of Tivoli is viewed from the foot of the fall, the masses of spray impelled by the wind from the cataract are seen to shoot out to a considerable distance with prodigious velocity, and afterwards with more relenting speed: occasionally the masses appear to swell and burst, then breaking into wreaths, curl back in revolving eddies. The influence of a storm-wind, combined with that of the falling masses of water, produces very irregular effects; the vapour is carried far from its usual course, and tossed wildly, as though by conflicting impulses. After rain, the fall has a marked yellow colour; but the foam is white, and the more so, as it is more broken; and the minute spray seems as pure and volatile as when the water is limpid.

When seen at a distance, the white colour of a waterfall appears almost uniform, and its transition with the surrounding objects is somewhat abrupt; but, in a nearer view, various tints and reflexions may be distinctly perceived, and the effects of a blue sky, mingled perhaps with purple, may be traced in the shadowy recesses, contrasting with warmer tints reflected from the rocks, and other neighbouring objects illumined by the sun. In the close view, the edges become also more softened, partly owing to the transparency of the drops, partly to the rapidity of their fall, which produces indistinctness and lightness.

In some cases, the glaring foam throws a faint reflexion on the neighbouring rocks. This reflexion is, however, but very feeble in open situations, where the light is uniform. Indeed, in most cases, no reflexion at all is perceived, unless the rocks have been polished by friction, or are bathed with trickling water. But in the gloomy hollows of glens and chasms, the pale light reflected by the foam becomes more conspicuous, and flashes of light are even perceptible at every gush of the cataract.

Low Falls in Canals or Rivers.—The mass of water, forming a cascade, generally breaks as it quits the ledge from whence it is thrown, so that it loses its transparency from the very commencement of the fall. But should the stream flow smoothly and undisturbed before the break, no foam is produced during a short descent of a few feet only; and unless any resistance is met with, the sheet of water remains nearly entire. The colour of the falling sheet, or threads of water, is less white than foam, but approaches much nearer to it than to the colour of the water when flowing in a mass. Thus the stream undergoes two distinct transitions, as it passes from the smooth and transparent state, before reaching the edge of the fall, to the pure and uniform white of the foam raised at the bottom. As the water divides and detaches itself from the bed, light is reflected from the under, as well as from the upper surface; and to this its light and crystalline appearance is owing: but when converted into foam, the light being reflected from the various sides of the drops and bubbles, gives it a far greater degree of whiteness. If the water glide over a smooth inclined rock, it will retain, for some distance, its dark and transparent colour, unless the change of direction should cause a portion of the sky, or some bright cloud which did not appear in the former direction of the stream, to be reflected: a flash of light will then mark the curve, or any point at which the inclination of the stream corresponds with these luminous objects.

A greater diversity of colours appears in the little stream which bounds on the rocks with transparent waves, intermingled with foam, than in the loftier cascade, where every coloured object, capable of producing variety, disappears behind the opaque masses of spray.

Sometimes considerable differences of tint result from the greater or less exposure of the foam to light. If the light of day fall strongest on the side opposite to that which is seen, the fall assumes a comparatively darkened appearance; and cascades falling in opposite directions, so that in one case the surface exposed to light is most seen, whilst in the other the shadowy side is alone visible, present a greater difference in their relative tone of colour than would be easily imagined. In sheltered chasms of the rocks, the green tint of the mountain-torrent may be perceived, even when reduced to spray by its fall.

The waves produced by a fall of water are similar to those raised by the wind. Their distribution is somewhat concentric when the basin is regular, and a limited portion of it only is disturbed. They otherwise become very irregular, and follow each other without order.

Foam in Torrents.—The foam either floats in buoyant waves at the foot of the fall, or boils up from beneath the surface, in the form of air-bubbles, which have been forced down by the descending current. Its quantity is proportionate to the mass of falling water; it also increases with the violence of the fall; it sometimes spreads over a wider surface when produced by a broken fall of three or four feet; or when it gushes from a sluice-gate, and is afterwards carried along by the current, than when produced by a slender cascade of considerable elevation falling into a pool. The transition from the white foam to the dark waters of the pool, is not unfrequently marked and abrupt. A few waves only, crested with foam, are flung off from the mass; but they subside almost instantaneously into the uniform dark colour of the water.

If one stream is poured into another from a plane slightly inclined, the foam is not produced at the point where the rushing current meets the level of that beneath. Instead of penetrating, it continues to glide over its surface, clearing the way before it; and after a slight depression, forms a wave, beyond which the surf appears.

One of the peculiarities connected with foam deserves more attention than the other circumstances which accompany its formation, since it originates in causes which are not at first apparent. The production of foam does not result exclusively from the immediate resistance of the rocks and other obstacles which project from the sides of the stream, or rise above its surface, but also from the indirect influence of the submersed obstacles, sometimes at a depth of three or four feet. When a river passes completely over a rock or other sunken impediment, a trough, or fall of its level ensues; a counteraction immediately afterwards takes place, and a wave is formed, which being met by the descending current, laps over and breaks, producing a ridge of foam, more or less abundant, according to the rapidity of the stream, its depth, and the size of the obstacle met with. The waves of foam which are produced by sunken rocks, are, in general, not exactly over the impediment, but some feet lower down the stream.

When a large rock rises above the water, the surface is little disturbed when it comes into immediate contact with this impediment, but a little above, where the water turns off on either side, waves of foam are produced, which form a widening circle round the obstruction. White frothy waves have a sharp convex edge towards the current. Now and then they bound forward; but they are continually repelled, and kept within due limits. The lower edge or boundary of the foaming mass is irregular, little defined, and presents often a train of considerable length, either from renewed obstacles, or from the rising of the foam to the surface.

It might be supposed that foam would appear in greatest abundance in those torrents, the shallowness of which would cause the surface of the water to be broken by the stones and other obstacles forming the bed. This is, however, by no means the case. The abundance of foam in a torrent chiefly depends upon the degree of violence with which its waters become agitated; and towards effecting this, irregularities of the bed contribute only in so much as they are combined with a certain degree of inclination, and, perhaps, more than all, with a large mass of water. Where a thin streamlet would glide amongst the rocks and be little agitated and broken, the copious flood, unimpeded in its course by these minor obstacles, precipitates itself with irresistible violence. But as the waters meet larger obstacles, they are flung and tossed about in all directions, and present one glaring sheet of foam, assuming myriads of fantastic shapes, quivering and bounding in their precipitous course.

Unless in a disturbed state, the colour of the water little influences that of the foam, and however deep the tints of the stream, if its waters be transparent, the foam is of a pure white, and it often contrasts beautifully with the dark green or blue peculiar to limpid waters. In the whitish streams derived from snowy mountains, the foam contrasts but little; its white mingles with that of the water, and subsides almost imperceptibly.

But the colour of turbid water becomes very apparent in its fall, and only partly loses its yellow tint, when reduced to foam.

ATMOSPHERE.

Owing to the excessive tenuity and transparency of the atmosphere, ocular observation leaves us, in many cases, unconscious of its presence. Indeed, we are keenly alive to its influence only when it affects us personally, whether with heat, cold, health, or oppressiveness,—impressions but very indirectly applicable to any method of characterising nature.

The effects which indicate the presence of atmosphere in the manner the most apparent to the eye, consequently the most available to art, are those which depend upon its action on light or yielding bodies, such as foliage, water, the sails of vessels, or floating mists and clouds. But these effects occur only with a disturbed state of the atmosphere; when at rest, all visible indications of its presence, within limited distances, are wanting. It is true, the slenderness and delicacy of many of the stalks and leaves of plants often make it appear as if the air assisted in supporting them; but their erect position is not owing to the support of a surrounding medium, as it is with those plants which, from the bottom of the water, rise to the surface. The slender leaves of the acacia, the head of the asparagus, and a feather of the lightest and most flexible description, maintain their form and position perfectly unaltered in the exhausted receiver of an air-pump; and we may conclude that the erect position of all fixed objects, surrounded by the air, is maintained independently of its influence.

With respect to the colour of the atmosphere, although unapparent at short distances, the sky shews it beautifully evident; but the blue which we there see seems to have so little connexion with the atmosphere which immediately surrounds us, that one is apt to feel the hesitation experienced by Da Vinci and others, in considering it to be one of its constituent properties. It can hardly be doubted that a change does take place in the appearance of most objects at very limited distances; but it does not appear that this change, existing to a greater or less extent in different states of the atmosphere, is owing to its intervention alone. In architectural elevations, where portions of a building are more remote than others, this increased distance from the eye is indicated by a light shading. Although there be no perspective diminution in the various parts of the building, the plan being a geometrical one, the practice of tinting the more remote parts may be advisable as a point of convenience, in order to mark the distinction of the planes. But it strikes me, that it cannot be admissible upon the ground that it is founded upon nature. Geometrical and perspective plans are, in this respect, distinct cases; many little circumstances calculated to produce differences in the appearance of vanishing objects, could have no influence on surfaces which are supposed to maintain the same apparent dimensions at all distances.

The intensity of the local colour of bodies is proportionate to the quantity of light emitted by them and received on the retina of the eye. Surfaces corresponding in colour, and equally lighted, emit the same quantity of rays in every direction; and as the rays become attenuated and diffused with the increase of the distance, from the surface radiating them, in a ratio corresponding to the squares of the distances, it might appear that objects more distant than others, whether subjected to the influence of perspective or not, would be influenced in their appearance by this decrease in the density of the rays, proportionate to the removal of the object. But this diffusion of the rays is inseparable from the perspective diminution of objects, which takes place in the same ratio; an object cannot be removed to double its previous distance without appearing to the observer to be reduced to one-fourth of its size; whilst the rays which he receives from it will, at the same time, be four times more attenuated.

Further, the same rays which represent the entire surface of a distant object, represent equally the fourth part of a surface at half that distance; so that the density of the rays, and consequently the degree of power in the colour of the objects which they represent, might be said, with as much reason, to depend upon the dimensions of the object, as upon its distance. But it appears that, in nature, the colour of objects is not influenced *immediately* by either. The scanty portion of rays which is emitted from a comparatively small surface conveys to the eye the same impression of colour, all foreign influences being removed, as those received in greater abundance from a surface proportionately larger. And it appears that the intensity of light and colour displayed at the surface of bodies is proportionate to the quantity of light emitted to the eye within a given space, and not from various points, as is the case when the extent of surface is increased.

Having compared the appearance of sheets of white and yellow paper, suspended at equal distances, I found that, from the first to the last, separated by an interval of thirty-two feet, there was no decided change in the brilliancy or colour of these sheets, when pains were taken to divest them of all influence from neighbouring objects; for instance, by observing them through small holes in a sheet of paper, or by marking their appearance when the foremost came into apparent contact with the more distant ones. Sometimes there appeared to be slight differences; but these could be accounted for by the unequal contrast of the surrounding parts. I observed, that when a nearer and a more distant surface, similar in colour, were contrasted by a dark background, the most distant appeared the lighter of the two; as, from being perspectively smaller, the dark had a greater influence in setting it off.

The same influence causes the small hole in a dark sheet of paper, held up against a light surface, to appear lighter than a large hole, when the paper is held very near the eye, the contrast of the surrounding black operating more on the small hole than on the large one. But, when the paper is removed to a greater distance, the large hole appears the lighter of the two; because a certain extent of any surface, whether light or dark, is necessary, in order that it should have its full effect upon the eye. Thus, when the paper is much removed, the small opening becomes so considerably reduced, that the light seen through it has not its full effect, and it appears feebler than in the large hole.

The same applies to bright colours on a black surface. A small patch or streak of bright yellow appears as brilliant as a large one when very near the eye; but when removed to a greater distance, the large one appears the brighter of the two, the lesser one becoming very dim when far removed.

This principle has a great influence in determining the apparent strength of colour of objects, and in informing the eye of their relative position. The nearer objects, though of the same size, occupy a larger apparent space than the more distant ones; consequently, if light, they appear lighter, if dark, their shade is more intense. This is very apparent in the manner in which the branches of trees come out, one before another, the colour of the nearest, which are perspectively the largest, being little influenced by the surrounding sky, whilst that of the more distant ones is greatly enfeebled. The same may be observed with posts, rails, and other similar objects; the nearest appearing stronger to the eye, though painted the same colour, and exposed to the same degree of light.

In level surfaces, such as are presented by roads and meadows, a slight difference of tint is also perceived from a very near point to one rather more distant, though not sufficiently remote to be subject to the influence of the atmosphere. The obliquity of the angle in which the surface is seen at a distance, appears to have a great share in causing this difference, as the road generally becomes light at a distance, where the light is abundantly reflected from the summit of every little projection. And this applies still more to a meadow, from the remote parts of which a great deal of light is reflected by the summits of the blades of grass; whereas, on a near point, the eye penetrates into the darker intervals between them.

The modifications of colour which are brought on by short intervals of distance, seem therefore to depend upon various combined causes; and the immediate diminution of the size of the object seems to have but an indirect influence, and, in some cases, it does not appear at all.

The circumstances under which chequered surfaces are seen, also differ considerably on a near, and on a more distant point. The diversities of shade and colour resulting from cavities, stones, and variously coloured grasses, which appear distinct at a near point, become mingled together at a distance, and consequently produce a very different impression on the eye: it is a kind of medium between the colours which are most predominant. Thus, from the mere confusion of colours, resulting from their being brought closer together, certain differences arise between the aspect of objects at intermediate distances and those close at hand. Transitions on a larger scale, presented by trees, buildings, and entire fields, become substituted, it is true, in the distance, for those minuter ones of leaves, plants, &c. which, in the foreground, fill up the space; but these transitions are of a different nature, and produce different effects.

The characteristic and decided tints of the atmosphere only become apparent at considerable distances, varying with its clearness, and with the light and gloom diffused over objects. And it is owing to this interference of the atmosphere that the distance of a landscape owes that exquisite softness, that gradual and harmonious passage from one tint to another, which distinguishes it from the nearer portion of the scene. (For the nature of these tints, I refer to *Distance*.)

The following, from Senex's Translation, are

Da Vinci's conclusions as to the influence of the atmosphere on the blue colour of distance. The truth, it will be observed, is mingled with some erroneous reasonings :—"Among mountains far removed from the eye, that will appear of the most beautiful azure which is in itself the most obscure,—and that will be the most obscure which is the highest and most covered with wood,—because of the shrubs found beneath the larger trees, which being shadowed from the sun, appear dark and gloomy. Now, the illumined air, interposed between these shadowy mountains and the eye, must, of necessity, have its azure heightened and made more perfect by means thereof; and the tops of high mountains being likewise the more obscure by reason of the thinness of their medium, will have the same effect on the air through which they are viewed. It follows, therefore, from what we have already laid down, that the mountains themselves must appear under the same diversity of azures, with those of the airs through which they are viewed, and that the tallest and the shadiest will excel the rest in the beauty of their colour."

The point most worthy of notice in an atmosphere charged with light vapour, is a pleasing indistinctness of the remoter objects, the more complete as these objects are more shaded, and the intervening light is greater; but the intense blue colour of the distant parts is the result of a highly pure atmosphere, or, rather, of an atmosphere moist, but transparent.

It may be observed, that when there is a haze, more particularly a morning mist, its effects appear somewhat different when observed in the direction of the sun, and when observed in an opposite direction. In the former case, the trees, hills, and other objects, come out, one before another, with a degree more of tone as each grows nearer to the eye: in the latter case, this progression from lighter to darker objects is less apparent, but their colour becomes rather more so.

Professor Forbes, in a memoir read before the Royal Society of Edinburgh, in 1839, examines, with scrupulous attention, the various causes producing the blue colour of the atmosphere, as well as the red and orange tints of sunset, accompanying his own views with a laborious and most complete examination of the numerous hypotheses given out on this subject, since the time of Leonardo da Vinci.

Amid various conflicting opinions, those most approved of by the author of the memoir, are, that the blue colour of the sky results from light of that colour reflected by the particles of air in its pure state, and independently of the vapour of water contained in it, in greater or less abundance. The opinions of Mariotte, Bouguer, Euler, Leslie, and Brandes, appear to coincide, more or less completely, on this point. The opinion quoted from Euler seems to be the most clear and positive. "It is more probable," he says, "that all the particles of the air should have a faintly bluish cast, but so very faint as to be imperceptible until presented in a prodigious mass, such as the whole extent of the atmosphere, than that this colour is to be ascribed to vapours floating in the air which do not pertain to it. In fact, the purer the air is, and the more purged from exhalation, the brighter is the lustre of heaven's azure, which is a sufficient proof that we must look for the reason of it in the nature of the proper particles of the air."

The opinions of the other authors quoted by Professor Forbes appear to be based, chiefly, on Newton's theory of the decomposition of the rays of light by aqueous vesicles, constituting the vapour contained in the atmosphere. According to these views, the reflected blue light is considered as the complement of the transmitted red light, in the passage of the sun's rays through the vapours of the atmosphere. This theory is objected to by Professor Forbes, on the ground that it is when the atmosphere is most dry and pure that its blue colour is the most intense. To this it may be added, that the blue of the sky is, generally speaking, much more intense in the middle of the day than it is at the hour of sunset, when the light transmitted by the sun is most red, and when, according to the Newtonian theory, the reflected light ought to be most blue. [See *Colour of Clouds.*]

Da Vinci's views, however unsatisfactory, have met with some followers. He maintains that the colour reflected by the atmosphere is white, but that it becomes blue in appearance, from the darkness of the space beyond. This view of the subject, though erroneous with respect to the main point, namely, the nature of the light reflected by the air, is not without merit, since it shews its author to be aware of the considerable influence which a dark and transparent ground would have on the appearance of the intervening atmosphere, lighted by the sun.

In considering the tints of the atmosphere, it is necessary to draw a distinction between the effects peculiar to certain climates and periods of the day, and those which are brought on, indiscriminately, by various accidental causes. Certain appearances take place in maritime countries which are never observed in more inland districts, and the effects of evening and morning are never repeated at other hours of the day. The white semi-transparent haze seems to be almost peculiar to the atmosphere of the British isles. Those countries which are exposed on one side only to the sea, have it to a far less extent, especially in more southern latitudes. Indeed a powerful sun seems to counteract the formation of these semi-opaque vapours, since in Italy and Greece, though more than half surrounded by the Mediterranean, a blue sky and a transparent atmosphere generally prevail. The islands of the Mediterranean appear to enjoy the same beautiful sky. At Constantinople, the blueness of the sky in October was intense, and heightened, with admirable effect, the glittering white of the mosques and palaces. If a comparison between the atmosphere of Greece and Italy could be determined, from the appearances which presented themselves during a single month, I should say that the tints of the former were characterised by warmth and softness, and those of the latter by purity and depth.

The pure atmosphere which prevails in the most inland mountainous countries, is accompanied rather by cold, than by warm tints. They are not, however, always devoid of the latter. The purple hues abound in the Alps, and I have seen the sunset produce tints of considerable warmth. The transparency of the air is shewn by the brilliancy of the sun when, from the summit of the Rigi, it is seen to rise above the distant Alps. It dazzles the eye as soon as visible, and the edge of its disk, when first shooting above the glaciers, appears like a bright spark. The eastern sky is paler than when seen from the plain, and the tinged portion of it less extended; but sometimes the sun is seen to rise amongst clouds with considerable glow, even from a high mountain.

Many of the rich and accidental tints of distance do not arise from the direct interference of the atmosphere, but from lights thrown upon certain parts under variously combined circumstances. As one bright light streams from the west, and lights up a prominent part, the colour of those adjacent, tame before, becomes strong from the effect of contrast, and often a series of beautiful gradations is seen to arise.

When the sun is high, and the atmosphere of a deep azure, this blue colour sometimes extends, mingled with grey, down to the horizon, so that white buildings, and other light objects backed by the sky, come out bright and strong upon it; but with a sun less elevated, its glare extends over the portion of the sky beneath it, and forms a very luminous horizon, compared with which all other objects appear in shade. With a misty and dull atmosphere, however, the horizontal sky is partly obscured by vapour, and its most luminous portion does not extend to the earth, but commences at a few degrees above it. This is an effect more easy to represent than the preceding one, owing to the lights being more moderate.

The vaulted appearance of the sky is in conformity to the usual effect of shadows, which increase in progressive gradations. Convex and concave surfaces are shaded off in this gradual and progressive manner, and a similar gradation of tints gives to the sky a resemblance to a convex surface.

CLOUDS.

An important influence pertaining to clouds in a landscape, is that of widening its apparent expanse: this result is most advantageous in a scene circumscribed by eminences, and other objects on the earth's surface. The extent of this influence may be judged of by comparing the appearance of a landscape, when lowering mists cover the summits of surrounding eminences, and close in the view, with the appearance of the same scene when the eye is enabled to trace, through a clear atmosphere, the forms of distant clouds far beyond those natural boundaries. Thus, when the view over the land is intercepted by eminences, the imagination dwells upon those unseen parts on which the clouds cast their shadow, and associates, through their influence, the invisible with the visible scene.

Owing to the great variety of forms presented by clouds, and to the ceaseless changes to which they are subjected, they have, at first sight, more than those of any other objects, the appearance of being accidental; from which, after a moment's reflexion, we infer that the laws which govern their formation are unusually irregular in their action. In clouds, less than in any other objects, can we trace the effects of principles uniform in their operations. Rocks and mountains, although rugged and frequently shattered, have, nevertheless, certain general characters, from which they do not materially deviate: indeed the principle which gives its stamp to any particular class of rocks or mountains, may generally be traced in their external features. Whereas, in the forms of clouds, the governing laws are remote and uncertain, and sometimes appear to be almost at variance with each other.

Mr. Luke Howard has, however, shewn that, amidst the irregularity and change prevailing in clouds, the effects of certain uniform influences may be traced. These influences, though of short duration, produce corresponding effects whenever they become predominant; and the repeated return of these effects, under similar circumstances, and often with characteristic resemblance, bespeaks the existence of some natural law, uniform to a certain extent. The same sort of cloud usually makes its appearance with the same wind, continues as long as the wind does, and will assume another form and character only when the wind changes or ceases to blow. If the changes exhibited by clouds were purely accidental, geometrical figures would, in the course of their endless modifications of form, make their appearance; but a cloud never assumes the semblance of a perfect cube or triangle, or of any other angular and symmetrical figure: it at most presents an apparent analogy. Some principle there is, therefore, which prevents the clouds from deviating from the flowing or the rounded forms which are peculiar to them.

The following are some of the appearances which may be traced to a regular influence. That of most frequent occurrence is the mottled appearance, either of the inferior strata of clouds or of the most elevated; in which last case they are usually white. Although an attentive examination shews that each of the small masses or waves of which the cloud is composed has a form somewhat different from that of any of its neighbours, they present, upon the whole, a regular and symmetrical effect, which distinguishes them from any other presented by clouds. This corresponds with the cirro-cumulus in Luke Howard's Classification of Clouds.*

Another appearance, which occurs very frequently, although less so than the preceding one, is that of horizontal streaks of vapour or light cloud traversing the sky in a parallel direction.

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* Luke Howard's system of Classification of Clouds is contained in a small volume, entitled "Seven Lectures on Meteorology." Its great applicability has led to its introduction into several works, and to its general adoption by science. The classification of clouds is here based on their shape and texture, combined with the manner of their formation or growth. The following are the leading characters of this system: Cirrus, the highest cloud, is of a light, fibrous texture; it is compared to a lock of hair or a fleece of wool. Cumuli, detached spherical heaps, increasing at their summit, and having a flattened base. Stratus may be partial or general, and constitutes fog or low sheet-cloud. The intermediate clouds, formed by a combination of the others, are, the cirro-cumulus, a mottled sky; the cumulo-stratus, irregularly heaped masses, formed by the accumulation of the stratus over and around the cumulus, the forms of which are described as resembling the folds of drapery. The cirro-stratus, a thin sheet of haze overhead, but presenting more defined shapes in the distance. Its elongated beds are compared to shoals of fishes. Lastly, distinct from the others, is the nimbus, electric or storm-cloud. It appears on the distant horizon like a lofty bank, and as it extends envelopes the sky in darkness.

They sometimes extend in a line geometrically straight to a very considerable distance. Analogous to this kind of cloud, as to its thin texture, is the elevated canopy of vapour, sometimes thickening in parts, and assuming but imperfectly any defined contour.* During a calm state of the atmosphere, the light clouds seldom correspond in different parts of the sky. Much uncertainty as to form and density then prevails, and the air is generally misty, or at least impure.

Feathery clouds are occasionally seen disposed at right angles with each other. Although the atmosphere is apparently calm, it is nevertheless probable, that slight currents of a very limited extent prevail. Hence the various forms and appearances of these clouds in different parts of the sky. Sometimes the influence of partial breezes may be traced from the curved form of a cloud, either at its summit or at one of its extremities.

The light fleecy clouds, designated by Luke Howard by the term of cirrus, are irregularly disseminated over the blue firmament; their curling and twisting forms are sometimes very fanciful; they have a minute fibrous texture, which is seldom seen in other clouds, and their range is perhaps the most elevated of any; they then form delicate figures, which may be compared to those of frost on a pane of glass, or to artificial designs. I have seen them resembling comets, with a condensed head or nucleus, and flowing tails and other appendages, bent in one direction, and indicating some particular influence of the atmosphere.

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* This corresponds with the cirro-stratus of Luke Howard.

There is an appearance peculiar to very hazy weather. The inferior edge of all the clouds, with the exception of those which are near the zenith, is lost in the mist which prevails in the lower regions of the atmosphere; so that when the sun is high, the clouds seem to have no edge excepting on the upper surface; beneath, all is haze and uncertainty. The parallel or diverging streams of light and shade, caused by the light of the sun traversing the vapoury atmosphere, are strongly marked, and often more predominant than the forms of the clouds. A sky of this description is almost peculiar to the hazy atmosphere of England.

What are the effects of a general wind? You may observe its influence extend itself throughout the whole hemisphere in a certain analogous appearance of the clouds. They often form dense masses resembling floating islands, with a well-defined outline, and intervals of a clear sky between. Sometimes they are very small, and scantily disseminated; at other times, they are of considerable extent and bulk, forming at their summit spherical projections, strongly illumined, and having a level base. These forms correspond with the cumuli of Luke Howard. When they unite into groups they become less regular in their structure, and perhaps the inferior portion of the mass will assume a dark and threatening aspect; and sudden squalls frequently ensue. With other winds the clouds do not collect into groups in this manner, but, every where equally disseminated, or rather united together, they advance simultaneously, and appear to extend in long rows to the right and left of an observer facing the wind.

When the clouds are low and rainy, covering the whole sky, they often present, during a gale, masses of an elongated form, not entirely distinct from each other, but separated by a thin portion of cloud. These masses are generally disposed in the direction of the wind, their foremost part being somewhat raised.

It would lead too far to examine the many opinions which have been given respecting the formation of clouds. They are considered by M. Pouillet to be composed of vesicular globules filled with moist air, similar to soap-bubbles; and by Dalton, to be formed of particles of water, which, owing to their excessive division, are borne up by the air. I will only hazard a word or two respecting the probable cause of some of the shapes of clouds.

The first stage in the transformation of vapour into clouds, is, its passage from a latent condition, or that in which it is dissolved in the air, to a visible state, in the form of vesicular vapour. One of the most remarkable circumstances connected with it, is, that the vapour of water, which, when absorbed, appears to be nearly equally diffused throughout the atmosphere, should, when condensed, collect into masses detached from each other, such as clouds generally present.

But, from the defined forms assumed by clouds, it would appear that there is a degree of attraction or affinity between the globules of vapour in its vesicular condition, which did not exist when in its latent state, and which being greater than the attraction between these globules and the air by which they are surrounded, determines their accumulation into masses. On the other hand, if attraction were the only cause of this accumulation into masses, the most prevailing form in clouds would be the spherical one, since this is the shape assumed by bodies, submitted to the unrestrained influence of attraction, from the drop of water to the vast globes which travel through space.

However, certain effects, observable only at short distances, as from the summit of a mountain, give to the formation of clouds a peculiar character. Small portions of aqueous vapour are seen to emerge successively from the atmosphere on the outskirts of the cloud, and are added to its mass, whilst others as suddenly disappear, absorbed in a transparent air. The portions of vapour thus continually added to or taken away from the mass of the cloud, must have a considerable influence on its general form; and however imperceptible at a distance, from a near point these changes appear to take place with such rapidity, that they might be expected to produce great irregularity in the outward edge of the cloud. The variations in the strength of the wind would, moreover, tend to increase this irregularity. In very small clouds, however, the reciprocal attraction of the vesicular globules seems to produce a concentric tendency of the mass, since they frequently assume a shape more spherical than that of larger clouds.

It is evident that the comparative smoothness of the inferior level of a cloud, must depend upon the relative weight of the vapour, and of the atmosphere in which it floats; this equilibrium preventing any part of it from falling below the level at which its weight corresponds with that of the atmosphere. The superior surface of clouds appears to be influenced much less by a principle of this kind, as it often shoots out into irregular and projecting masses, though possessing a firm and distinct outline. With respect to the horizontal boundary of a cloud, it is uncontrolled by any influence of this nature.

Rain has often the effect of breaking the inferior level of clouds; this may be particularly observed in mountainous countries, where, during rain, or even for some time after, small clouds are seen hanging about the sides of the mountains at various elevations, sometimes at considerable intervals from each other, sometimes connected with a mass of clouds above, and presenting, with their numerous folds and scattered fragments, a picture of irregularity and confusion. Nevertheless, by casting a general glance at all these dispersed masses, it may be frequently observed, that there is a certain line or level below which none of them appear to fall; although, at other times, no conformity in the level of these straggling fragments can be observed.

Luke Howard assigns to electricity considerable influence in the shapes of certain clouds, and describes the changes of form which take place after an electric discharge. The effects brought on by electric tension are sometimes evident, and very peculiar. At the commencement of a thunder-storm, a dark cloud was seen divided into quadrangular partitions, by white streaks resembling footpaths. With the growing fierceness of the storm, these divisions became contracted and folded together, assuming waving and less defined shapes, and the whole became a confused mass, after an abundant discharge of electricity and rain. On a cold day of spring, the edges of a circular cloud were seen to diverge in every direction, having the appearance of a brush, or of a head of hair under the influence of electricity.

Owing to their thinness and transparency, clouds depend, in a great measure, on the strength and direction of the light for their apparent outline. On the side upon which the light strikes, it is clear and distinct, and on the opposite side diffused and uncertain, although the real state of the cloud may reasonably be supposed to be similar on both sides. But such projections as constitute the thickness of a cloud, and do not extend to its margin, are most influenced in their appearance by exposure to light. When in the shade, the irregularities of a cloud's surface are unobserved; the whole is, perhaps, nothing more than an uniform grey mass; but as a sunbeam breaks through an opening, not only new colours and effects, but also new forms, suddenly burst upon the eye, and the small clouds, which before seemed to form part of a larger mass, now appear detached, with a considerable space between.

Transparency.—Clouds are translucid or semi-transparent. They are traversed by light, although objects are not seen through them, unless they be very luminous. The sun and the moon are seen only through very light clouds. Stars, owing to their tenuity, are likewise seen faintly through thin clouds; but the outline of a mountain, or of any other object not luminous, is not seen, even through the thinnest nebula, unless the latter be so near, as to present rather the character of a fog than that of a cloud. I have however seen, on more than one occasion, the shadow of a mountain projected on a cloud, of which, from my position, I could see only the inferior surface; consequently the shadow was seen through the cloud.

When low thin clouds are separated from each other by small intervals of blue, covered only by a light vapour, the disk of the sun, seen through these intervals, appears without brilliancy, and gives no offence to the eye, although at a considerable elevation.

Colour of Clouds.—The white or grey fog by which we are sometimes surrounded, has so little apparent analogy with the marked forms, and the rich colouring of the clouds which soar above us, that a distinct appellation is completely justifiable. Indeed, the new name given to it, when embodied in the cloud, is an acknowledgment of the extent of the change which the mist, in appearance, undergoes; and our senses are with difficulty convinced, that the same forms, so shadowy and intangible, will appear, when blazing in the sun's radiance, like a mass of molten gold, worthy, as Goethe I believe expresses himself, to become the foot-carpet of the gods.

The colours conspicuous in clouds, particularly when illuminated by the rising or setting sun, are at times so bright and delicate, that their splendour would probably be not less striking than the tints of the rainbow, if seen in the same harmonious opposition; and their dazzling brilliancy may be said to be considerably greater. It would be useless to describe the various colours which are exhibited on these occasions; suffice it to say, that the gorgeous yellow colours with which the clouds of the western horizon are fringed, at the hour of sunset, are modified by orange and red, whilst the shadowy sides of the same clouds, present, with beautiful opposition, and in softer gradations, various pink, purple, and brownish tints, which gradually subside into colours more grey and uniform, as they recede from the centre of light and brilliancy.

Within a certain range of the sun, its rays are refracted by the clouds, the edges of which become intensely luminous; whilst the rich colours before alluded to, disappear with the extreme brilliancy of the light. Sometimes the sun is concealed by the cloud, and the intensely illumined margin then presents but a very narrow streak. As the eye turns from the horizon towards the zenith, the light is not limited to the extreme edge of the cloud, but colours a considerable portion of it with rich warm tints.

The interposition of clouds towards the horizon, and other circumstances, sometimes cause uninteresting effects to be substituted for those which generally give so pleasing a character to the periods of sunrise and sunset. When the sun's rays are entirely precluded by a thick layer of clouds or vapour, tints of an uniform grey prevail over the whole extent of the sky, and when the sun faintly penetrates this dull canopy, it sometimes only gives rise to colours of a heavy character.

Uninteresting effects are not always excluded even from nature; a remarkable instance of this presented itself from the summit of the Rigi, where it was rendered the more striking by the great beauty which generally characterises the daily appearances on that mountain. Previous to sunset, the sky became overcast, and the atmosphere thick with vapour; the mountains, instead of shewing their rocky outline well defined, and their rich clothing of wood and pasture, with their usual brilliant clearness, wore a heavy and confused appearance; all such features as generally denote distance were wanting. This effect, though singular, and probably of very rare occurrence, was devoid of grandeur, and presented nothing to elevate or expand the mind.

Whenever effects are presented to us far short of the ideas we conceive of perfection, or unequal to the elevated character of the objects with which they are connected, others more congenial with the sublime nature of the scenery should be substituted. Low sentiments in men are neither dramatical nor poetical; if their passions be despicable, it is necessary they should be directed into a course promising great results, in order to produce that satisfaction which should be the aim of every fiction. This applies equally to natural effects. Storms and hurricanes may be announced by dark clouds and a wild firmament; for notwithstanding the disasters which they portend, their general character bespeaks power and grandeur. In the same manner, with actions requiring great might and energy, a calamitous result is concealed by the difficulty and greatness of the enterprise; leaving admiration and awe the prevailing sentiments.

Very slight changes brought on in nature by causes which are not apparent, suffice to produce unpleasing results. This occurs frequently with clouds, since many of the effects connected with them are so uncertain that they cannot be traced to their cause; for instance, the colour of the semi-transparent clouds forming a mottled sky, not being such as would in appearance result from the light which they receive, they have a singular and sometimes an unnatural appearance. An attentive examination often shews that this effect is caused by the partial appearance of white clouds above, alternating with portions of the blue sky; but owing to this semi-transparency of the sub-stratum of cloud not being at first perceived, the cause is not evident, and consequently the effect is not agreeable.

Clouds never present in the middle of the day those brilliant and rich combinations of colour which are so conspicuous in the morning and evening; those which appear when the sun is high are frequently little else than shades of the same tint passing with many gradations from the white to a dark grey; these tints increase in number with the depth of the clouds and the irregularity of their surface; but seldom, if ever, present lively or glowing effects. Thus in scenes at noon there is no rivalry between the tints of the sky and those of the landscape beneath, the superior strength and vigour of which remain unimpaired.

The tints of the atmosphere shew but little on clouds uniformly in the shade; often much less than on land-objects equally distant; and when the sky is entirely overcast, their grey dull colour extends almost uniformly from the horizon to the zenith.

The influence of the intervening atmosphere prevails only when the clouds are broken up, and the light poured in from above. Light blue tints will then appear on the shady side of the most distant clouds, less decided, however, than that of distant hills and mountains.

On the most distant parts, the influence of an illumined atmosphere is sometimes so great, that although storms may be forming on various points of the horizon, the general aspect of the weather will appear fine and sunny. The shadowy surface of clouds situated at a midway distance is of a grey, approaching often to black; whilst, as they extend over-head, tints of a warmer nature almost invariably prevail. With respect to the illumined side of clouds, the difference between the tints of those near the horizon, and those which are situated at an elevated angle above it, is inconsiderable during the meridian hours. When there is a difference, the lights nearest to the horizon are the warmest, but the white is influenced less than any other colour by distance; so that, in a picture, very nearly the same tints may be used for the lights in every part of the sky.

The whiteness of clouds increases with their density, and with their elevation. The tops of elevated clouds often equal in brilliancy the snow of lofty mountains, from which they are not easily distinguished. Indeed, a constant result connected with the colour of clouds, is their increasing whiteness towards the summit. This is very apparent in the evening, and during storms, when the pure light which comes from above communicates an intense whiteness to the uppermost parts of the clouds, rendered more apparent by the warmth which pervades their inferior portion. If there be two strata of clouds, the superior one being sufficiently light to admit partially the sun's rays, the inferior clouds are generally warmer than those above. If, however, the superior layer preclude all direct light from the sun, inferior clouds will sometimes show pale and bluish tints reflected from the sky through a concealed opening.

Clouds seen from above are remarkable for their uniform whiteness. The brilliancy of a fog, which I observed from the Rigi, extending some thousand feet below, as far as the eye could reach, exceeded that of the snow on the Alps. It communicated a pale tint to the sky, and every where lessened the depth of the shadows. The upright surface of the rocks, more exposed to its reflected light, appeared almost luminous. The sun was reflected upon its smooth and undulated surface as on the sea, but with a softer and less dazzling light.

Clouds of considerable extent generally shew colours less dark than those which are small and detached, although, perhaps, the habit of associating the expression black, with the stormy or threatening aspect presented by large clouds, may sometimes lead to false conclusions with respect to their real darkness. It is principally to the contrast resulting from the light sky by which they are surrounded, that small dark clouds owe their jetty appearance.

Let us choose a case of a different nature. A stormy cloud appears at a certain distance, having a dark and threatening aspect; but as it advances, and casts its shadow over the spot occupied by the observer, it appears less black in proportion to the gloom cast over the earth's surface.

Remarks on the Colour of Clouds.—The rapidity and the unexpected manner in which the colours of clouds succeed to each other, combined with their extreme brilliancy, excite a more than usual degree of curiosity as to their nature and origin. In Newton's Optics, this subject is alluded to in the following terms:—"If we consider the various phenomena of the atmosphere, we may observe that when vapours are first raised, they hinder not the transparency of the air, being divided into parts too small to cause any reflexion on their superficies. But when, in order to compose drops of rain, they begin to coalesce, and constitute globules of all intermediate sizes, those globules, when they become of a convenient size to reflect some colours and transmit others, may constitute clouds of various colours, according to their sizes; and I see not what can be rationally conceived in so transparent a substance as water for the productions of these colours, besides the various sizes of its fluid and globular parcels."

It should be observed that this theory of Newton, so intricate, and so little applicable to the general phenomena of the colours of clouds, is only given out, in a cursory manner, in a problem, the subject of which is, the property possessed by minute transparent particles of reflecting certain rays of light, and of transmitting others, according to their sizes. It is so natural to those engaged in intricate analysis, to explain the more simple effects of nature by those principles which have been discovered with much attention and labour, that we need not be surprised if Newton himself has been induced to extend, too far, the application of a theory so admirable in its more immediate bearing. Chambers's Cyclopædia contains, under the article "Colour," a refutation of this theory, by a Mr. Melville, who questions the probability that the drops of water constituting clouds, would be, at the hour of sunset only, of the necessary size for producing the bright tints alluded to; and attributes their formation to the passage of the sun's rays through the atmosphere in a horizontal direction, and to the reflexion of them by the clouds. He ascribes the colouring of the rays themselves into yellow, red, and orange, to the property of the atmosphere, of transmitting those colours, and of reflecting the blue and violet.

This explanation appears unobjectionable, provided this property attributed to the atmosphere be limited to that portion of it only which is nearest to the earth's surface, and which appears to transmit the red rays in a much more perfect manner than the superior strata. It is in the direction very nearly corresponding with that of the sun, in which the light received by the eye is chiefly transmitted light, that the glow, or red colour, is most intense. In a direction at right angles with the sun, where more light is reflected than transmitted, this red tint is comparatively slight, and the blue predominates. But if we were not to confine this property of the atmosphere to the lower portions of it, the absence of these red tints in the part of the sky surrounding the sun, when in the height of its course, would remain unaccounted for. Towards evening, the fiery appearance of the clouds progressively increases with the sun's decline; as it diminishes in the morning, with its progress towards the zenith; the increase of warmth in the colour of clouds being, in both these cases, at a corresponding ratio with the extent of atmosphere traversed by the sun's rays.

There seems to be no reasonable objection why the lower strata of the atmosphere, highly charged with aqueous vapour, should not possess a property which does not belong to the purer portions of it more remote from the earth.

It should be understood that this theory of the decomposition of the sun's rays does not suppose a process analogous to that which produces the colours of the rainbow: those of clouds are the result of the uniform glow of the whole body of rays which proceeds from the western horizon, since clouds remote from each other present the same colours when exposed to the same light.

Experiments made by Professor Forbes on the steam emitted from the boiler of a steam-engine,* afford evidence of a new kind on this subject. He observed that vapour, in the transition state between that in which it escapes quite invisible from the valve, and that in which it constitutes an opaque cloud, had the property of resolving the light transmitted through it into several colours. The author of the memoir observing the analogy between the most glowing of these colours—namely, the orange and orange-red—and those produced by the horizontal sun, particularly at its decline, concluded, that at certain periods, and in certain conditions of the atmosphere, the vapour contained in it undergoes a mechanical change, similar to that in which it passes from the invisible to the opaque form, when expelled from the orifice of a boiler; and it appears that the stages in which the vapours of the atmosphere are possessed of this property, would be those marked by some immediate or proximate transformation, whether into cloud, dew, or rain. Various observations, made from nature, are adduced by the author in support of this theory, which indeed explains admirably the fiery redness which usually marks the glow of sunset, when extraordinary atmospheric changes take place. It further seems to harmonise with the opinions of most authors concerning the colour of the transmitted light of the sun; nor do any of the general phenomena of the morning and evening tints appear to be opposed to it.

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* See Transactions of the Royal Society of Edinburgh.

The bright tints which clouds derive from the direct rays of the horizontal sun appear to differ very little from the glowing tints which are communicated to other objects at the same period of the day; but, owing to the light and delicate nature of clouds, and to the great facility with which they are impressed with every hue which is cast upon them, as well as to their isolated position in a blue medium, beyond the neutralising influence of every strong local colour, these tints appear with a combined purity and brilliancy perhaps unequalled in any other objects.

The principal agents with respect to the colours of clouds, placed according to their degree of influence, are as follows:—1st. The direct light from the sun. 2dly. Reflected light. 3dly. The local colour of clouds, or of the vapour composing them. 4thly. Their property of transmitting light.

Direct Light from the Sun.—The brilliancy, or rather richness of this light, increases with the declination of the sun, with the amount of vapour contained in the atmosphere, and with the partial interposition of clouds; the colour of the sun's light being often considerably increased by its passage through the intervals of clouds, or through the mist which surrounds them, as may be observed on a cloudy sunset, or in the effects peculiar to storms. The brightest portion of the sun's light, reflected by clouds, appears to be the yellow and orange, whence it subsides downwards into red, pink, and purple.

Indirect or Reflected Lights.—The reflected lights greatly contribute to the variety of colours and appearances conspicuous in clouds. The margin of clouds not exposed to the sun, often appears lighted from the reflexion of the adjacent ones, illuminated by the sun's rays. The reflexion of the sky is also very manifest, especially when the azure light is admitted through an opening in the clouds, so that its influence be partial, and contrasted with tints of a different nature: these reflected colours of the firmament give to the clouds a light and aërial appearance, which is very beautiful.

It can hardly be doubted that the light reflected from the earth greatly influences the colour of the inferior surface of clouds, although, from the distance of the body receiving the light from that which reflects it, the results of this reflexion come little under observation. Low clouds often exhibit warmer tints on the shadowy surface facing the earth, than on that which is exposed to the sun's light; and towards evening, when little light is reflected from the earth, the under surface of clouds may be observed to be darker than in the middle of the day.

Local Colour of Clouds.—Clouds seem to present differences of colour, independently of the quality of the light to which they are exposed. The fog which surrounds an observer situated on a mountain has not always the same colour; on certain occasions it has an intense whiteness, differing considerably from its usual appearance. When seen at a distance, this difference in the colour of clouds is even more remarkable. Small clouds of a brown colour are frequently seen in the vicinity of others nearly white, although both be equally exposed to the sun. This difference may sometimes be accounted for, from the darker clouds being situated in a more luminous part of the sky. But, at other times, their position is such, that their appearance would not be influenced by contrast.

Detached fragments will come out in shade before a mass of greater density, although the sun's rays shine equally on both. This, however, appears to arise from the transparency of the small fragments, and their incapacity to reflect much light. It is from the centre of its illumined side that a cloud generally emits the most light. It is not till the rays have penetrated the thin vapour to a considerable depth, that the whole of them are reflected. Small portions of vapour on the surface of the cloud, although they receive the first rays, appear as shadows on the intensely-illumined mass beneath; hence the great variety even in that portion of a cloud which is fully exposed to the sun. Distant and opaque clouds, however, reflect a great deal of light to the very edge.

Their Property of transmitting Light.—The differences of colour which clouds owe to the direction in which they are lighted, with respect to the observer, are but very slight. The clouds in the vicinity of the sun, seen by transmitted light, do not appear, in general, in the least degree more coloured than those which are at a considerable angular distance from it. This is the more remarkable, as, in most cases, thin white bodies have a warmer colour when seen in transparency. The edges of massive clouds near the sun acquire (as before remarked) a highly lucid state, and become coloured only as they recede from the focus of light. It therefore appears that the clouds owe very little of their colour to their transparency, although it is probable that it is not without some influence. To these causes may be added the contrast of the blue medium by which clouds are surrounded; the brilliant colours which they exhibit, when situated in the midst of the blue atmosphere, partly disappear, when, from the passage of the cloud before a mountain, they have to compete with the heavier colours of vegetation.

Perspective of Clouds.—The diversity in the form and size of clouds, however characteristic, does not exempt them from the influence of perspective. The great elevation of clouds causes, it is true, a considerable portion of them to be seen in a perpendicular direction, which is little influenced in its appearance by perspective. Nevertheless, in the whole mass there is a marked diminution, caused by the immense distance to which clouds extend in a horizontal direction. When their form is well defined, or when they are separated from each other by certain intervals of space, their perspective diminution towards the horizon may be distinctly traced.

It is during sunrise and sunset that the forms of distant clouds generally appear with the greatest distinctness, owing to the contrast presented by their shadowy side with the illuminated sky behind them. The diminution caused by distance is sometimes so great, that, when they cross the disk of the sun, they appear like specks upon its surface. Clouds seen under these circumstances may be compared to very distant mountains. The chain of the Alps is, in clear weather, seen from a distance of 120 miles; and Mont Blanc, according to Ebel, commands a range of 68 leagues, or about 200 miles. This gives an idea of the immense distance at which clouds, whose elevation sometimes exceeds that of the Alps, may be seen on certain occasions.

The effects of foreshortening are very perceptible in the smooth and flattened under-surface of clouds, the layers of which, when seen transversely, become more and more narrow, as they vanish from the eye; and I have observed narrow bands of clouds which presented a very decided convergence; reminding me of the decorated ceiling of a long gallery. The apparent fall of the sky towards the horizon, when covered over with clouds, results from the vapour of the atmosphere, which conceals the forms of those which are most distant, and prevents their perspective diminution from being traced beyond a certain point.

Distance has often, with respect to clouds, a reverse influence to that which marks the remoteness of other objects, since neighbouring clouds present no definable outline; whereas, with increasing distance, it becomes marked and distinct. But, at a point still more remote, where the influence of the mists of the atmosphere begins, the increasing indistinctness of clouds is similar to that which characterises other receding objects. Owing to these peculiarities in the perspective of clouds, to their ever-varying size, and to the great difference which exists in their density, but an imperfect notion can be formed of their elevation and distance. Thus it is, that light vapours will often appear to be situated above massive clouds till they cross before them, concealing them more or less, when their position may be partly ascertained.

We sometimes mark the elevation of clouds by the different degrees of velocity with which the superposed layers are respectively seen to move; since we generally assign a position nearest the earth to those which advance with the greatest rapidity. In this manner smoke, similar in colour to clouds, is, by its motion, easily distinguished from them. The art of painting is entirely deprived of this means of marking distances. Indeed, the true situation of clouds can be but very imperfectly pointed out in a landscape. This is of less importance when clouds are employed as a means for producing effect. But the character of clouds should not be entirely neglected with respect to the situation which they occupy in space. It is to their large scale that clouds owe that character of grandeur with which their appearance in the heavens is connected, and which distinguishes them from the minuter objects covering the earth's surface. Nor can any idea be given of this important character, unless the distance at which they are placed be, to a certain degree, pointed out; since the same form which appears majestic when a vast expanse intervenes, would be characterised by minuteness, if situated at no great distance from the eye. In mountainous countries, where clouds collect around the heights, and have consequently a local connexion with them, the elevation of the mountains themselves would be considerably diminished, by giving to the clouds an appearance not sufficiently remote.

FOGS AND MISTS.

The effects presented by fogs are chiefly adapted to such landscapes as flat countries afford. The lofty outlines which form the principal interest of mountainous scenery are concealed, and those objects only which, from their comparative smallness, belong to a narrow circle of vision, are perceived through the thickening fog. The romantic, which shews itself only where the earth's surface assumes bold and extraordinary features, is therefore precluded from the landscape which is pervaded throughout by a fog or a thick mist; and the eye is confined to a humbler class of objects, such as trees, houses, towers, and shipping.

The character of the scene is, however, in general, less mean than might be expected from the necessary exclusion of all that is elevated in the forms of nature. There are circumstances connected with the fog which communicate a peculiar interest to the picture; the phenomena of the atmosphere have descended to the earth's surface, and the light-grey tints of distance are brought into connexion with the objects immediately around us. The appearances peculiar to clouds, repeated on a reduced scale, have interesting associations; and a light mist, extending in the form of a belt across a group of trees, or settling at the foot of a hillock, has sometimes reminded me of those effects of clouds on a large scale which so greatly add to the interest of alpine scenery.

Fogs have, farther, an interesting connexion with the seasons and the weather. The dews and hoar-frost, the sheets of vapour spread over the meadows, and the clouds of steam which surround the panting animals; the moisture of the evening air, shewn by the thickening mist; and the course of rivers, traced by the light vapour which floats above them, are all incidents connected, more or less directly, with fogs.*

The apparent increase in the proportions of distant objects affords interesting incidents, though seldom represented. It may be explained thus:—the houses, trees, and figures acquire, when seen through the fog, the faintness of objects much more distant; and their proportions, which are those of near objects, are, consequently, too large for the distant situation which they seem to occupy. With many objects, and more particularly with masses of foliage, the external outline alone is discernible through the mist. The intervening space is often little else than a colourless shadow, which the imagination fills up in various ways. Thus, whilst proportion becomes magnified, every singularity or eccentricity of form becomes more conspicuous, and a peculiar expression is given to every image,—now phantom-like, now bordering on the ridiculous. The shorn and knotty elm, here erect and leafless to the top, there crooked and tufted at the joints, becomes unusually grotesque. Groups of trees, seen through the mist, present combinations even more ludicrous. Their inclination in various directions gives to each a marked expression; and they appear alternately to shun or to defy each other with mimic action. Thus, the apparent disproportion of objects, and the substitution of mere shadows for colour and substance, facilitate every kind of illusion.

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* The appearance of steam on the surface of water, or over marshy soil, is owing to the condensation of the rising vapour by an atmosphere whose temperature is colder than that of the water, and saturated with moisture.

The difference between fogs and mists may be said to depend upon the greater density of the former, and upon its completely surrounding the observer. The mist is lighter and more transparent; its whole extent is traced in the distance;

it occupies a portion only of the landscape,—the bottom of a valley, the foot of a mountain, the surface of a lake, &c.; and its effects are very applicable to painting. On leaving Singerin, in the Höllenthal, Styria, I observed a very beautiful example of a partial mist; it hung lightly about the mountains, which were seen through it as through a light gauze. Its density varied considerably in different parts; against the mountains it appeared white, but dark against the sky. I have seen opaque fragments floating in the centre of a transparent mist, seemingly the embryos of clouds in a state of formation.

Judging from the few opportunities which I have had of comparing the density of a cloud covering the summit of a mountain with that of the usual morning-fog of the plain, the average density of the former is the greatest. In a fog covering the Schaffberg, a mountain nearly 6000 feet high, I lost sight of my companion at a distance of eighty or ninety paces. On the Rigi, the same occurred at a distance of from sixty to eighty paces, whereas the morning-fog in the low country seldom causes a figure to disappear at such short distances. The mountain-fog appears generally to have a lighter colour than that of the plain.

At an early hour, the colour of a fog is generally of a pale grey, but as the sun ascends it becomes gradually warmer; and as it breaks up, bright red and yellow tints, similar to those of the clouds, but softer, and subsiding more gradually, make their appearance. The sun itself, when seen through the mist, is of a pale yellow, without glow, most unlike its inflamed appearance when seen through a smoky atmosphere. I have seen pictures in which the sun, seen through a misty atmosphere, at a considerable elevation above the horizon, has been represented of a very warm colour; but this is not the appearance which it assumes in nature. It is only when the sun is near the horizon that its appearance is red and glowing; and an increased thickness of the mist has not the same effect as a more horizontal position.

It is not often that incidents of light and shade vary, in an agreeable manner, the characteristic monotony of a fog. Sometimes the fog divides partially into masses, some of which are of a warm and yellowish tone; whereas others are of a marked blue, according as they admit or exclude the sun's light, reflecting in its stead the blue tints which are derived from the sky. The passage from one of these tints to another is very gradual.

As the mist ascends, and assumes cloud-like forms, the gradations of colour become more contrasted, and its hazy borders become tipped, as they catch the sunbeam, with bright yellow and reddish colours. I have observed on the edges of a fog which rose from the surface of a lake surrounded by hills, colours almost equal in brilliancy to those which appear with so beautiful an effect on morning-clouds. When the sun penetrates a fog which hangs lightly about the trees or other proximate objects, their shadows present blue tints possessing a remarkable degree of freshness.

The pearly tints of the misty atmosphere, in connexion with the objects immediately before the observer, might, in some cases, become an interesting addition to the effects which are commonly introduced into paintings. It is, however, usual, in the representations of fogs, to put in the shades of a warm grey, or of a transparent brown, in order to secure harmony and unity of effect.

A fog presents very beautiful effects in connexion with water; it grows more and more dense till the placid surface disappears completely, and the sails of distant vessels appear to glide unsupported through the mist. The following effect presented itself from the Brighton cliff on a calm and frosty morning:—a light fog covered the sea, shewing but indistinctly a small fleet of fishing-boats off the shore: suddenly a breeze sprang up, which blew the fog in one direction, leaving in the other a clear atmosphere, with the sails, rigging, and crews of the boats distinct and well-defined; thus forming, in the lapse of a few moments, two pictures, entirely different in effect and character.

The colours of the bow are sometimes produced by the sun shining upon a fog; their order appears to be the same as those in the rainbow, but they are much paler, and the ring in appearance is more contracted. It is more susceptible than the rainbow of being introduced into paintings.

EFFECTS OF SMOKE.

The advantages resulting from the introduction of smoke into the landscape, have not escaped the quick and tasteful observation of Gilpin, who paints in a lively manner its pleasing effects, when seen amongst the trees of the forest.

Unimportant as it is in itself, it has a remarkable influence on the scene which it enlivens, and few are the means by which the lonely place may be converted into the inhabited one, so easily and yet so effectually, as by the introduction of smoke.

When it results from consumed embers or from the charcoal kiln, it has a very delicate grey tint, approaching to blue. As a colour, it is much purer than that of clouds, as they usually appear when in shade, and seems to possess more of the light tint of distance than clouds do. Hence its light pleasing effect when thinly spread over a background of trees and other dark objects.

But under various circumstances smoke assumes almost every shade of colour. From the fire just kindled with straw and weeds, there is a mixture of yellow and a little red, which tints disappear at a short distance from the cause of the smoke; in a gloomy scene, the glowing reflexion of the fire on smoke becomes very distinct; tar produces a warm brown smoke; the smoke from chimneys varies with its density and the nature of the fire; and the dense black smoke of engines and manufactories need scarcely be referred to.

When semi-transparent, the tint of smoke is much influenced by the direction of the light; though it may appear of a pale grey with a front light, it becomes reddish when lighted from behind, or, when rising above a dark background, it expands before the clear sky.

From an open fire, smoke rises with brisk and sudden impulses, expanding rapidly, and forming globular and revolving wreaths; especially when it shoots out in a new direction. The more it is confined, and, to a certain extent, the longer the channel, the slenderer is its form, and the more protracted its course before dispersion.

The progression of the funnel emitting the smoke, as in the case of steamers, has exactly the same consequences for an observer who marks the effect at a given moment, as a wind in the contrary direction would have; and such modifications in the direction of the smoke, as result from the progression of the funnel, combined with the influence of the wind, will depend entirely upon their relative speed. In a clear atmosphere smoke has a steady ascent. In a thick fog its direction is more uncertain, and it remains a longer time suspended in the air before it dissolves.

WIND AND STORMS.

In order that the representation of storms and tempests be invested with the classical and elevated character of which the subject is susceptible, it may be well to avoid such incidents as would detract from the solemn simplicity of the scene. The threatening state of the elements should be unaccompanied by a too close and circumstantial view of the miseries which it occasions. The despair of the wrecked mariner, the agony of his friends on shore, may render the appearance of the sea-storm more distressing: but such details, brought closely to view, rather lower than elevate the character of a composition, having for its object the representation of a storm or tempest.

The storm, with its stern but mysterious terrors, is perhaps nobler than those compositions which exhibit the human miseries in unveiled proximity. Calamity itself sometimes becomes little and mean, unless ennobled by some act of heroism or self-devotion. The terror which the storm inspires should be derived from a higher source—from causes more widely spread; disasters should be perceived at a distance, through the raging of the hurricane, or threatened only by the disturbed and unusual aspect of the sea and heavens. The impending danger which the vessel is labouring to avoid should appear, rather than the lifeless bodies of the crew, and the shattered fragments of the wreck, strewed upon the beach.

The opinions of Leonardo, however, differ considerably from those hazarded above. He introduces those marks of terror and dismay which are manifested in the acts and features of wrecked mariners, to increase the horror of a tempest. The following is his energetic description of a sea-storm:—"If the storm be represented at sea, the waves dashing against each other must cover it with froth, which being raised up with the wind, may fill the air as with a thick cloud; vessels appearing in the middle of the water must discover sailors holding the ends of broken ropes, shattered sails wildly floating, and torn masts tumbled upon the deck; others may be represented upon the point of shipwreck, the waves breaking in, the mariners shrieking and laying hold of the remaining wrecks of the vessel. One may further feign the air full of clouds, impetuously driven by the winds, stopped and repulsed by the mountain-tops, and having re-collected themselves, encompassing them like waves broken against a rock; the day at the same time appearing dark, and overshadowed with dust, rain and thick clouds."—*Senex's Translation.*

The terrific grandeur of the storm may be idealized by the selection of the most imposing of its effects in nature, as are beauty and dignity in the human figure, by the choice and union of its scattered perfections. Poussin, Vernet, and I might add, Wilson, have expressed in noble and elevated characters, the frowns of nature; Claude Lorraine, her smiles, her invitations to recreation and pleasure. In both cases, the artifice by which the effect is wrought, is bold, and widely spread throughout the scene; there is no condescending to details, either mean, or offensive to the feelings. This chaste and elevated path has become more arduous, since the prestige which attends the appearance of every new style in painting has worn away. The artist is now compelled, in order to secure novelty, to have recourse to incidents of a less elevated nature, which escape general observation; and he gives the faithfulness of minute portraiture to his subject, in order to secure attention and favour under circumstances in which the plain effects of nature have lost their attractions.

There are few styles in which the means are so inadequate to the purpose as in the representation of storms. In nature the interest is kept alive by succession and change; the clouds grow in extent and density; the waves present a visible increase in height and volume; and expectation is raised at the sight of the advancing billow, which, more formidable than those which preceded it, promises others still more grand and terrific. A dismal gloom succeeds to the glare of the sunbeam piercing the broken clouds, or to the flash of lightning. The murmur of the wind, the beating of the rain and hail, the crash of trees and buildings, the material pressure of the air itself, and indeed all those circumstances by which the presence of a storm is made, as it were, palpable to the senses, are entirely wanting in the art of painting. In the picture, no account can be given of what cannot be perceived by the eye, and the events thus told must be those of one moment: they form one brief scene in the entire drama. This scene should, therefore, in itself, embrace the whole interest and plot of the representation; or, rather, the events previous and subsequent to it should be absorbed by its superior attractions, so that the remainder of the narrative be not inquired after, or be but vaguely conceived in the mind of the observer.

Tempests are manifested to the artist by their effects only: he considers not the strength of the current of air, nor the velocity of the clouds which are carried along with it, but he sees and admires the storm, in the extraordinary colouring put on by nature, and the peculiar form of all objects subjected to its influence. Water, from its extreme mobility, receives its first impression, and has a characteristic mark for each of its stages;

and this is an immense advantage in the representation of storms at sea.

On land, the signs by which the existence of the gale becomes evident, are very limited. The bending of the trees, and of vegetation at large, forms the principal, and, in many cases, the almost only indication. Nature, however, produces others; and it is a proof of observation, and sometimes of genius, when the violence of the wind is manifested in a picture by some simple and novel incident.

The effects of wind on vegetation are marked and general; and it is on the observance of these effects, diversified according to the nature of the resisting material, that truth, in the representation of a land-storm, chiefly depends. The principal difficulty consists in the indication of motion, which is less easily overcome than that of light itself: it may, however, be indirectly expressed. Owing to the elasticity of most bodies, and to the sudden and unequal impulses of the current of air, this motion is, in nature, of various kinds; it is at times retrograde, at times diverging from the main direction of the wind: indeed motions of the most opposite nature exist almost contiguously. In painting, one point must be fixed upon amongst these conflicting vibrations; and this point, contrary to the means usually employed for indicating force, is that of the impulse which is spent — the blow which has fallen,—and not the uplifted arm, as is the case—whenever physical force is expressed.

It is not the most weak and slender objects which are most shaken and tortured by the wind: the tall poplar yields to its violence, and, with the exception of its being bent in a regular curve, it loses little of its characteristic form and appearance; whereas such trees as withstand firmly the impetus of the gale are more disfigured,—their foliage and branches being thrown confusedly together. Owing to the same principle, low trees and bushes are often more shaken and distorted than the loftier ones, which are more pliable and yielding. Sudden gusts of wind also have greater effect on the leaves and smaller branches, than a continuous wind of equal strength. In the former case, the tree not having had time to bend, the full action of the wind is spent upon the leafy surface. The foliage thus compressed has a whiter appearance, owing to the light colour of the under surface of the leaves, which are turned up, and also to the greater quantity of light which is thus reflected.

The corn yields, with elastic pliancy, to the pressure of the wind, and then resumes its erect position. As it thus waves to and fro, the effect glides on, and the whole field becomes animated with motion, and with contrasting undulations of lights and shades. The grass, also, beaten down by the sudden gust, presents alternately a glossy and a ruffled appearance. But this last effect is, perhaps, too minute and circumstantial for imitation.

The smoke is carried horizontally in a long attenuated stream, and, like the expanded flag, shews the exact quarter of the wind.

In more confined places, drapery is subjected to motions less regular and uniform; at times ruffled into various shapes; at times swollen and puffed up, it appears, for a while, to resist the influence of the wind: sometimes the rapidity of the flutter causes the form to appear indistinct and confused,—an effect which probably might be imitated to advantage, since the idea of motion may be successfully conveyed by the indistinct appearance of the spokes of a wheel rapidly revolving.

Leonardo describes thus the effects of wind, raised to its highest degree of violence:—"In painting a tempest, you must represent the clouds driven impetuously by the wind, and clashing against each other; the air filled with dust and sand swept from the shores, and gathered into eddies; leaves and even branches of trees disorderly blended with other light bodies, and hurled with rapidity over the whole region; herbs beaten close to the ground; some trees torn up, their roots in the air, others giving way to the wind, their boughs broken, or bent contrary to their natural posture, their leaves ruffled and folded in different manners; men overturned, encumbered in their clothes, covered with dust and scarce to be known; others who keep upon their feet appearing behind some tree, and clinging close round it, lest the storm should transport them; others covering their eyes with their hands for fear of being blinded by the dust, bending towards the earth, with their drapery irregularly fluttering in the air, or even flying from them in the wind."

Storms in the Mountains.—Storms assume, in the mountains, peculiar and sometimes extraordinary appearances, many of which are, however, more meteorological than picturesque, and can, with difficulty, be subjected to the domain of the art. The southern gales, known in the Alps by the name of Sirocco, or Fœhn, are the most disastrous, both from their violence and from the inundations caused by the sudden melting of the snow and ice. They are characterised, in the commencement, by a sky almost clear, and by the apparent proximity and heaviness of the mountains. Large masses of clouds are accumulated on the southern side of the Alps, but to the north, a few streaks of light vapour are alone apparent in the higher regions; or a few straggling clouds which have passed over the main ridge, or which have become condensed with the increasing moisture of the atmosphere, appear on the sides of the mountains. In the summer, the rain commences after three or four days' duration of the south wind, but in the winter the change of weather is more sudden. The snow which has deepened on the mountain-tops is loosened and precipitated in the form of avalanches. The glaciers are rent, and the sharp crackling of the ice is mingled with the distant thunder of the falling masses.

The Sirocco traverses the higher ridges of the Alps before reaching the northern valleys, and its arrival there is frequently announced by a distant murmur, and the waving of the mountain forests, whilst all is yet silent and motionless in the valley. The storm then precipitates itself into the low-lands, with intermittent gusts of limited extent. The trees are, in some parts, violently agitated, though neighbouring trunks stand erect and unshaken; and the lakes present alternate tracts of precipitous waves, and of comparatively smooth water. These are characters which the imagination rather than the hand of the painter may grasp and embellish.

An observer on a high mountain frequently sees a storm as he would the scenery of a theatre from the stage; the operations of the clouds are close at hand, but no definite effect is produced. The various parts appear detached and unconnected with each other, and the observer, surrounded by fleeting shades, is scarcely able to identify the appearances before him with those which he is accustomed to witness from the valley.

One of the distinctive features of storms in an alpine country, is the apparent connexion between them and the loftier summits of the mountains. It is about the highest peaks that the clouds first appear to collect, extending thence across the valleys, but appearing most dark and opaque along the ridges of the mountains. At times these natural conductors limit the influence of the storm to their neighbourhood; at times, however, these superb objects appear humbled by the superior elevation and extent of the tempest, which spreads its dark shadows over their numerous peaks.

The immense range and awful violence of a storm of this kind, may be judged of by its effects. In 1831, several valleys to the north of the Alps were subjected, at the same time, to the disastrous influence of such a storm. In some of the valleys, houses and bridges were destroyed by the sudden overflowing of the torrents, and trees were torn up by the violence of the wind; whilst to the south, the valley of the Tessin, though separated by two of the highest chains of the Alps, appeared to be in the very heart of the tempest. At night the awful gorges and precipices of the Simplon were discernible by the intense and intermittent flashes of lightning.

During storms of less violence, the lightning falls on the mountain summits, which conduct the fluid, and govern the storm; but during the commotion above referred to, the range of the lightning was in the superior regions of the atmosphere, and the peaks of the mountains seemed to have lost their influence. This extraordinary atmospheric disturbance rolled on as unimpeded by the barriers of the Alps, as are the currents of the ocean by the rocks and shoals embosomed in the depth of its waters.

It more frequently happens that the storms in the Alps are confined to the valleys in which they are formed: a dense bed of clouds marks their progress along the mountain-side, whilst a train of mingled wind and rain sweeps the intervening valley. The small clouds, which before adhered motionless to the slopes, now become agitated, and are precipitated forward with extraordinary rapidity. This generally announces that the storm is near. A few moments after, the trees are bent down, and the dry leaves and broken fragments are blown into the air. But these violent gusts are generally of short duration; they are usually followed by torrents of rain, and soon after by sunshine. Not unfrequently, two or three of these summer storms succeed each other, between noon and sunset.

RAIN.

Rain is often introduced, with advantage, into the distance of a landscape. Distant showers point out the state of the atmosphere, give a character to the clouds, and, like other effects, draw the attention to those parts where they have been introduced. Poussin, Vernet, Wilson, and others, have shewn that its appearance, thus limited to the distance, is not incompatible with classical scenery. It is, in general, confined to a small portion of the picture only, and is represented falling, in darkish streaks, from clouds bordering the horizon, or half concealing, with a misty veil, the remoter objects.

When, however, brought into closer view, and made to mingle with the near objects which fill up the foreground, the effects of rain no longer harmonize with that which is elevated in form and character. Rain then becomes the fit accompaniment of scenes of common-place interest,—of streets, houses, farm-yards, &c., pouring from the roofs and leads, and inundating the roads and lanes. When brought into immediate collision with our habits and tastes, its tendency must be the grotesque, and its aim caricature. A beating rain can have no other interest than the incidents which it produces: and, with a different object in view, its representation is almost impracticable. To copy the innumerable drops of a shower would equal, as a mechanical task, the representation of every blade of grass in a meadow; and, unless in a violent rain-storm, no combination of effect could be substituted to this microscopic labour, since a general rain equalises the tints and appearance of objects, and never produces differences.

Compared with fogs, rain has very little influence in intercepting the vision, or in rendering indistinct the objects seen through it; and it is, consequently, little calculated to produce those illusions of distance and proportion which are peculiar to mists. The distance at which objects grow indistinct in a steady rain, is from 800 to 1000 paces; whereas, in a dense fog, large objects, such as trees, appear like dim shadows at a distance of sixty or seventy paces only, and the influence of the fog, on the appearance of objects, begins to shew itself even at seven or eight paces; whereas, under usual circumstances, mountains are still discernible through the rain at a distance of several miles. During a very hard rain, a mountain distant about three miles, in the valley of Ischel, disappeared from sight; but during ordinary, though steady rains, the mountains did not entirely disappear at a distance of nine or ten miles.

The more minute the rain, in equal quantities, the more the view becomes intercepted, and a fine drizzle has as much influence in conveying indistinctness to objects, as a rather abundant rain, of larger drops. Much depends upon the state of the atmosphere during the rain: it is at times accompanied by a mistiness, either local or general, which modifies the appearance of objects not less than the rain itself. The effect of rain is more apparent when observed through a window, than when seen from an unsheltered situation, where all objects appear equally subjected to the same influence.

With the exception of the rainbow, coloured effects are very seldom produced by rain. When general, an uniform greyness pervades the atmosphere, but it scarcely modifies the objects within a limited range; and in this respect, rain appears to differ very much from the spray of the waterfall, which conveys the impression of whiteness. There is no reason, however, for supposing that this arises from any difference in the nature of the drops in the one and in the other case. The drops of rain have an appearance similar to the spray of the waterfall, when collected by the wind into masses, and seen against a dark background formed by a mountain, trees, &c.; and spray itself loses its whiteness when seen upon the sky. Were it to pervade the whole of the atmosphere, as rain does, so that no transitions would result from its greater abundance in one part than in another, it is probable that the appearance of spray would correspond with that of rain.

Fountain-jets, white against masses of foliage, become dark in appearance as soon as they emerge above the screen of verdure, and shew off upon the bright sky. As, however, the spray of fountains and waterfalls is, in the far greater number of cases, seen upon a ground darker than itself, the whitish colour is that under which it is seen most frequently; and this, its usual colour, is considered to be its characteristic one. Accidental deviations from it do not sufficiently attract attention to alter the impression founded upon the generality of cases. With respect to rain, the prevailing impression is founded on the appearance which it has when seen against the sky, the most usual way of observing it; and opposite impressions are the result.

Rain in the Mountains. — In mountainous countries, where large masses of dark background rise behind the falling showers, the influence which rain has in lightening their tint is very perceptible. This tint, indeed, becomes almost white when the quantity of rain is very considerable, more especially when limited to one mountain, or to a part of it only, its influence being then shewn off by the greater strength in the tone of the adjacent parts. Isolated showers are sometimes lighted through openings in the clouds, which gives them an opaque and whitish appearance not exhibited by a general rain. The part concealed by the shower is seen to grow paler and paler as it recedes behind the thickening rain, till it is scarcely discernible whether the effect be ascribable to this cause, to mountain-mist, or to snow.

When the whole of a mountain, or of a series of mountains, is enveloped in rain, there are as many gradations of tint as there are recesses and depressions in its slopes. Forms, unobserved before, come out with distinct projection, and a variety of outlines seems to break up the previously uniform surface of the mountain.

Such effects of rain as would be entirely lost in ordinary scenery, often become conspicuous and beautiful in the mountains. They are capable of becoming picturesque on a large scale only; consequently alpine scenery realises to their utmost extent any advantages connected with the appearance of rain. A mountain, colossal in its proportions, but uninteresting from its protracted outline, is, as it were, cut in two by an advancing shower. The more distant portion is still seen, but so imperceptibly, that it no longer forms a whole with the dark masses which stand forth in a pure atmosphere. Thus, an entirely new outline is produced, and bold and abrupt forms are substituted for those which previously excited no interest. Important effects of colouring may be seen to accompany these changes; the blue and purple tints occasioned by the darkening clouds become more deep and beautiful, from the contrast of the light grey of the shower rapidly spreading.

Hail falling in the mountains appears more white and opaque than rain, and the direction of its streams is more straight and perpendicular.

The direction of the rain, with respect to that of the wind, or to the motion of the cloud, appears to differ considerably on different occasions. When it advances with the same rapidity as the cloud, it falls vertically, and this seems to be generally the case; but when inclined, its inclination appears to be backward rather than forward, that is to say, the masses reach the earth at a point less advanced than the cloud from which they fall; but this depends upon the relative velocity of the currents of air at different elevations. The inclination of rain is seldom great, and, I should think, rarely exceeds ten degrees. I have observed it fall in different directions at the same time; sometimes it may be seen to form a distinct curve.

The colour of rain in the distance differs little from that of the cloud from which it falls. But, owing to its greater transparency, it is susceptible of deriving warmth from a glowing light situated behind, which, during the vapoury and disturbed state of the atmosphere brought on by a storm, alternates with the blue reflexions, and produces a variety of distinct hues.

A heavy shower often appears to cut off horizontally the cloud from which it falls; but, as the rain extends, this line becomes more diffused, and disappears when it has become general; small fragments are detached from the cloud, and dissolved by degrees. On other occasions, the rain seems like a projection of the lower surface of the cloud towards the earth; and I have observed rain to extend to a short distance only from the cloud, becoming entirely dissipated long before reaching the earth. The dryness of the atmosphere might, in this case, have effected the complete evaporation of the drops during their fall.

A soft mistiness pervades the scene which the shower has just abandoned; but a great clearness of the atmosphere soon follows, accompanied by unusual depth and freshness in the tints and colours of objects. These transitions are very beautiful, and may be caught on their passage by an exercised pencil. Perhaps the train of a shower sweeping by in concave streams might likewise be introduced.

The events which are subsequent to a fall of rain are, in general, picturesque and agreeable. The soft transparency of the atmosphere; the bright green of the meadows; the freshness of the vegetation in general; the sparkling of the returning sunbeam on the moistened surface of the leaves, and in the drops which they still throw off at every motion; the steam rising from the previously heated roofs; the contrasts between the dazzling reflexions of the moistened roads, and the dark appearance of the trunks of trees, of palings, and other objects of wood, soaked with moisture; are effects either pleasing in themselves, or interesting, as marking this peculiar state of the weather.

SUNBEAMS.

Visible rays or beams of light, are but modifications of that general effulgence which is spread over the atmosphere when the sun's light is entirely unobstructed. It is no unusual concentration of light which causes the appearance of rays, but merely its isolation. When the light is excluded from any portion of the atmosphere by an intervening body, such as a cloud or a mountain, the portion from which the light has not been precluded appears luminous by contrast. Thus, apertures in a cloud, which admit a partial light only, or deep notches in the edge, which cause the illuminated atmosphere to have a greater extent or depth in one part than in another, give rise to visible rays of light.

The beams of light which are produced under these circumstances have a grand and advantageous effect; the more so, from the rare occurrence of straight lines in nature. They extend for miles over clouds and mountains, break the monotony of smaller objects, and connect the almost opposite points of the horizon. At other times, rays assume quite a different character; their extent is limited to a few yards; they are seen to dart from the trees and bushes, from the crevices and windows of ancient buildings, or enliven scenes of a still more domestic character.

On this limited scale, a dense medium is required, in order that the beam of light should become visible. The morning-mist, the dust of the road, smoke, or the volatile particles of all kinds which fill up the interior of a chamber, become the means of rendering light palpable to the sense of vision, and of enabling it to trace its course through space; but a very slight haze, or mistiness of the atmosphere, suffices to give rise to those far-extending rays which are produced by clouds. The depth of the portion illumined by the sun compensates for its want of opacity; and the phenomena alluded to will sometimes make their appearance when the state of the atmosphere is comparatively clear.

But there are other circumstances which influence the apparent intensity of the rays; such as the darkness of the background, and the situation of the observer. The brilliancy of the rays varies with the shade of the objects before which they pass; and when they traverse white, luminous clouds, they generally disappear altogether. They are, however, visible against the blue firmament. In a room, the difference in the distinctness of a beam, before a light and a dark background, is very great. The distinctness of the edge of the beam varies considerably with the direction in which it is seen. It is most marked when the position of the eye corresponds exactly with the plane of the illumined surface. Sunbeams are much more marked and distinct when the observer is so situated as to face them, than when he views them from the side, or from behind. It is from this last point that they are the least visible.

This is very apparent with a ray formed in a dark room by an opening in a shutter, by which a gleam of light is admitted. The beam thus produced, especially if there be smoke in the room, is very intense; when seen from a point opposite, it appears, indeed, almost opaque: and since, in this last case, the eye looks down upon the ray in an angle corresponding, more or less, to that in which the light falls upon the particles which it illumines, it may be, perhaps, in an angle corresponding to that of incidence, that most light is reflected by these particles, and that the beam becomes, in appearance, most dense and vivid.

It is true, when the eye meets the rays, it traverses a greater depth of illumined dust, or vapour, than when the ray is seen from the side; which may also have some influence. However this may be, the phenomenon is not limited to the darkened room; nature furnishes it with corresponding results. The bundle of rays which is produced by the sun breaking through a thicket upon the morning-mist, though perfectly distinct from a front situation, disappears altogether as the observer advances and places himself on the spot where he had seen the rays; nothing there remains visible but patches of sunshine on the turf.

Rays of light are most distinct, when the observer and the surrounding atmosphere are in the shade. I have observed the rays which are produced by the notches in the ridge of a mountain to become indistinct and confused, when the rising sun, which had been previously screened by the mountain, had reached the spot where I was situated, — the luminous condition of the surrounding atmosphere obliterating, all at once, the distant rays.

The influence of a ray of light, in rendering indistinct the objects beyond it, is remarkable, if we consider how small this influence is, when the atmosphere is illumined in every part. If an atmosphere, illumined throughout, be interposed between the observer and an object at an inconsiderable distance from him, the form and colour of that object does not appear modified, but remains, in appearance, the same as it would be if light were excluded from the intervening space; but the admission of a partial ray seems at once to diminish the distinctness of the object beyond, especially if it be of a dark colour; although the depth of the illumined atmosphere be less, by a great many times, than when the whole light is poured in. It would seem, therefore, that it is to the attention which is engrossed by the illumined volatile particles, and to the definite figure which they appear to assume, rather than to the real obstruction which they afford to sight, that the indistinctness of the objects which are seen through a beam of light is owing.

The great diversity in the apparent direction of the rays which shoot out of the clouds from distant points, or from one centre, must strike everybody. At times they are seen streaming down to the horizon, and diverging like a fan; at other times they appear to traverse the vault of heaven in a horizontal direction; or they assume these, and other directions, at the same time. Notwithstanding this apparent divergence or complete irregularity in their distribution, the rays from the sun are, in reality, parallel to each other, under whatever circumstances they are seen. This fact will at once become evident, by considering the smallness not only of the spaces which separate the apertures in the clouds from each other, but of the entire earth's diameter, compared with its distance from the sun.

The direction of every ray which makes its appearance in the sky when the sun is yet above the horizon, is parallel to a supposed line from the observer to the sun, and, with very few exceptions, their direction is towards him; that is to say, they are nearer to him at the end of their course than when they leave the cloud, although their increasing faintness, as they descend, causes them to recede, in appearance, from the cloud, towards the extreme limits of the horizon.

The cases in which the rays do not come nearer to the observer, as they proceed in their visible course, are, when the sun is below the horizon, at which time their direction is ascensional, though in a very slight degree. The other case is when the sun, being still somewhat above the horizon, the rays are seen to extend to the opposite part of the sky, after having passed the observer's zenith. The rays, although they incline towards the earth, owing to the sun's elevation above it, nevertheless recede from the observer, after having passed over the point where he is situated; and this apparent retreat of the rays is then marked by a contraction of the sides, or by a convergence of the pencil of rays towards a point opposite to that where they first appear. This convergence of the rays, as they recede from the sun, occurs very seldom, and is the less observed, from their being faint and indistinct.

Rays are seldom as marked in the middle of the day as they are at the hours of sunrise or sunset, particularly at the latter period; but when the atmosphere is very hazy, rays will appear, even with an elevated position of the sun. Small compact clouds, in a serene but misty atmosphere, may be seen to project a stream of shadow down to the earth: indeed, darkened rays, caused by the projections of the clouds, are almost as frequent as the luminous ones. Sometimes both are presented contiguous to each other, with various gradations, from the brightest beam to that which is most obscured: the effect is then marked and powerful, and engrosses all the attention of the observer. In such cases, the formation of rays is, in a great measure, the result of lights and shades cast upon the clouds themselves, when they are low and misty. On a clear day the rays are confined to the limits of the vapour, with which a cloud appears to be surrounded. As the cloud advances over the observer, and changes its form, the rays may be seen in motion, quivering and mingling into each other; but before they have extended far, they melt and disappear in the general light of the atmosphere.

There is another instance of rays, very limited in their extent; it is of a completely different character. This occurs when the margin of a cloud is strongly illumined by the sun, generally where it approaches the horizon. A dark shade is then seen to border the luminous margin of the cloud. This shade, which is intense, compared with the prevailing light surrounding it, has a width sometimes not much exceeding that of the luminous margin of the cloud, and fades off nearly equally in its whole extent, so as scarcely to suggest the idea of rays; and, indeed, the margin of the cloud being sometimes straight and smooth, there is no apparent cause for the production of rays of any kind. Can this dark shadow be owing to the contrast of the vivid light on the margin of the cloud? If so, why should not a shadow of opposition appear against every other bright light exhibited in nature?

The moon gives rise to the appearance of rays, as it does to the rainbow: the former have, indeed, sometimes considerable intensity; they will even shoot up against the dark grey sky from the notched edge of a cloud passing before the moon.

The phenomena of rays offer no little resources to landscape-painters: they have the advantage of presenting straight bold lines in opposition to the rounded and broken forms, which in nature are so far more prevalent: but this advantage is greatly increased by the light transparent nature of the rays, which allows of their traversing other lines, wherever they meet them, without interrupting them. Their convergence towards the point where the sun is situated, wafts the imagination into the regions of space. It is true the representation of the sun itself effects this; but this is a point far more difficult to accomplish, and far less satisfactory in the result, than is the introduction of the pencil of rays to which the sun's effulgence gives rise, in its passage through the atmosphere in divided streams.

The effects of rays are frequently misunderstood, and introduced under circumstances where they would not appear in nature. The rays which are occasioned by the clouds, are sometimes erroneously confounded with those which arise from the openings and interstices of buildings and other proximate objects; but the rays which originate in the clouds are on too large a scale, and are formed at distances too great for them to be connected with the rays which appear from the windows of ruined castles, &c. These last can only occur in fogs, or at least during a misty state of the air, where a small depth of illumined atmosphere suffices to render a ray of light visible. The rays which appear in the sky have generally a distinct edge, and this circumstance marks their distance, since their boundary would otherwise be very diffused. When they are projected near the spot where the observer is standing, they generally disappear.

The notched outline of a mountain does not produce an entire beam of light, but a stream having only one marked boundary,—namely, at the lower edge ;—the luminous effect vanishes wherever the dark background of the mountain is wanting, and, consequently, has no distinct upper limit.

Luminous rays are seen in the morning before sunrise, or in the evening after sunset, as long as half an hour, or even longer, after that period. They shoot up from the western horizon to a great elevation; sometimes one or two broad streams appear; sometimes it is a large pencil of rays : they are probably owing to the interposition of clouds beyond the visible horizon, or to mountains which are equally out of sight. I observed very bright rays in a clear sky some time before sunrise, from the plain near Salerno: there were high mountains in the direction of the sun, but as the rays did not appear to correspond with the depressions of their outline, they must have been the result either of a chain more distant, or of hidden clouds.

RECEDING PLANES, OR INTERVALS OF DISTANCE.

Two kinds of distinction are necessary, in the planes or surfaces distributed throughout a picture,—the one depending upon their uniformity of direction or relative inclination; the other on their remoteness in the scene. These last may be termed perspective or aërial planes, being separated from each other by intervals of space and portions of the atmosphere. They usually correspond with the three principal parts of a picture,—namely, the foreground, the middle distance, and the distance or background; or they may be divided according to the number of predominant objects which appear one behind another. Thus a scene in which groups of trees, buildings, or eminences present themselves in succession between the foreground and the distance, may be said to constitute as many planes.

Distance.—The distant, or at least the remote parts of a landscape, seem to be those which first attract the attention of an observer: they offer a wide space for the eye freely to wander over, and at the same time a great number of objects is embosomed in a small compass. Towns, mountains, lakes, and rivers, are brought into close union. Every grand object finds admittance; whereas the foreground, or nearest part of the scene, affords room only for small objects and fragments of the larger. Yet this interesting portion of a landscape, where form speaks in so noble a strain, possesses nothing else which may be called stable or permanent. No single object there possesses a colour of its own; its appearance depends upon a thousand incidents, changes with every sunbeam or shadow which passes across the sky, and presents modifications of tint so delicate and unsubstantial, that opinions seldom coincide respecting their true nature and value.

It is only when the artist sits in presence of nature that he is able to apportion with accuracy the colours of the palette to the value of the tints which appear before him. Comparison, however, gives to the tints of distance a relative, and for the artist, a real value. Indeed, such as of themselves are too faint and delicate to be described, may be fully appreciated by their transitions.

When distant mountains are partially shadowed by clouds, the intense blue of the shady part causes the adjoining portions in the sunshine to appear, by comparison, of a greyish tint, in the nearer parts inclining to yellow; but when feebly exposed to the sun, distant mountains will appear of a beautiful transparent blue, when a great extent of clear illumined atmosphere intervenes. This blue tint, diminishing as the distance increases, becomes so faint in the middle distance, that the colour of the fields, the meadows, and the soil will sometimes appear, when examined each part separately, to predominate over the tints of the atmosphere for a distance of several miles.

Nature, however, is far more beautiful when these strong local colours are softened down or hidden by the depth and splendour of the effects which so frequently enrich the distant scene. Those transitions, which are the result of strong local colours, seldom have a good effect in the distance. The contrasts, however, which result from a mingling, or rather from alternations of wood, corn-fields, and pasture, may be excepted; their effect is picturesque and pleasing, notwithstanding the violence of the transition.

The dark blue tint which appears on the foliage of trees shews off with considerable effect the green and yellow spaces which intervene; but, generally speaking, the transitions which result in the distance from objects of a dissimilar nature, never equal in softness and intensity the effects produced by gleams of sunshine and the shadows projected by the clouds. These often change completely the usual progression of tints; and it frequently happens that a mountain comparatively near, wears a much deeper hue than another at a very considerable distance. On the other hand, I have seen a mountain, though not distant, but overshadowed by clouds, lose almost entirely its colour and outline, from the intervention of a vapoury and strongly illumined atmosphere.

In the extreme distance, mountains partake almost entirely of the light grey tint of the sky near the horizon, from which they are distinguishable rather by an outline, faintly, but distinctly marked, than by a different shade of tint.

Mountains situated in the third plane, chiefly owe their dark appearance to the lowering of thick clouds above them. Their colour sometimes becomes so intensely dark, that the shades of the foreground seem light in comparison; it becomes the main shadow in the scene, the basis on which every effect of light must be made to depend.

Mountains less remote, although they be exposed to the sun, generally come out in dark upon a clear sky; and with the exception of rocks of a bright colour, which contrast in light with the blue zenith, their vigour of tone is such, as to throw the light clouds and vapours of the atmosphere far behind. In nature, this is owing less to the heaviness of the mountain, than to the great brilliancy of the sky. But the art of painting being deficient in means of rendering the atmosphere luminous, is compelled to recover her ground, by increasing the darkness of the mountains, not without risk of making them disagreeably heavy. That nice adjustment of colours throughout the picture, by means of which dangers like these are avoided, belongs properly to colouring.

The tints produced by the sun shining obliquely, especially towards evening, partake rather of the red than of the yellow. These tints pervade the atmosphere; so that the objects which are situated behind borrow the same colours. Red, pink, and purple tints, in soft gradations, generally mark the passage from the illumined to the darker portions of the scene. As the light fails, these tints gradually fade away; the shades deepen almost into black, still preserving, however, a lakey transparency, whereas brown tints prevail in the less distant parts.

Whilst one portion of the landscape is glowing with the setting sun, the blue and grey tints of noon may be sometimes seen to prevail elsewhere, forming a remarkable contrast of cold and warm colours; and during storms, one of these tints will sometimes succeed to another with rapid transitions. I will introduce an instance observed from the Kahlenberg, near Vienna. The houses of the town being white, partake the more readily of the tints which prevail in the atmosphere. Thus, the rays of the setting sun gave them a decided reddish tint. A thunder-storm, accompanied by a heavy shower of rain, having suddenly changed the state of the atmosphere and the disposition of the clouds, the town became illuminated by a very pale light; and whether owing to the effects of a light mist, whether to the influence of this pale gleam of light, this very white appearance of the city had a peculiar softness, contrasting forcibly, but with great delicacy, with the dark storm, still prevailing in the distance. The white tints seemed to be owing principally to the pale reflexions from a considerable portion of unclouded sky, uninfluenced by sunset.

Middle Distance.—The middle plane of a landscape having a more limited expanse than the distance, the forms are there less grand and imposing; the scene becomes, however, more cheerful and animated. The figures which become visible, as well as the objects immediately connected with them, give it somewhat of a social character. In this part of the scene, trees and buildings acquire a distinct outline, and a firm and substantial colour; thus becoming detached from each other, with space and air between. It is here that the grouping of objects presents a kind of brotherhood of nature's productions, in which their forms are picturesquely marked and balanced.

The importance and prominent position of the objects in the second plane of a picture, often determine, in their favour, the first and leading strokes of the work; those, in fact, on which the position and size of all other objects in the scene are afterwards made to depend.

Owing to the objects in the middle distance having, for the most part, determinate proportions, and to their being situated between two other planes, more than usual attention is necessary to the size which they derive from their perspective situation. A slight error as to their true proportion leads to considerable difficulties in fixing the size of the objects, both in the planes beyond and in the foreground; these last becoming excessively large, if the objects in the middle plane exceed only by a little the true standard of proportion with respect to those which are situated beyond them.

FOREGROUND.

The great, if not the principal object, of the foreground of a picture, is to throw back the middle and distant planes by a mass of strong colouring. The less, however, this purpose is shewn by the choice and arrangement of the materials composing it, the more easy and natural the composition will appear to be. If the general effect of the piece be well managed, no made-up foreground of stones and fragments is required; little alteration will be found necessary; the forms which usually occur in nature, in the parts nearest to the observer,—a road, a heath, and even water, may have sufficient tone of colouring to throw back the more remote parts of the picture, and maintain them at their respective distances.

Bold and simple forms appear to be the best adapted to the foreground. Much labour would be useless in a portion of the picture on which the eye remains but little, and the chief purpose of which is to relieve that which interests more. A degree of finish which is suited to more attractive objects, becomes meretricious when bestowed on the very borders of the picture.

Poussin generally contents himself with the rocky forms which appear on the projecting bank, or in a broken and varied soil; Salvator Rosa with the trunks and stumps of trees; and Ruysdaal seldom goes beyond what most usually occurs on the cross-road, or on the verge of a forest. Claude de Lorraine introduces, sometimes with minute and delicate touch, the tenderest herbs and flowers; but the lively tints with which his lawns are enamelled, correspond perfectly with the glowing warmth and cheerful serenity of the scene. They appear to have been dipped in the pure azure of his skies, or in the golden beams of the sun, breaking through the evening cloud.

Nature affords an immense variety as to the choice of the materials suited to the composition of a foreground, particularly in the vegetable kingdom; and it shews no ordinary degree of skill and patience on the part of the artist who fully avails himself of the treasures thus placed at his disposal. The size and beauty of some of the plants, and the great diversity in their form, texture, and colour, render them objects of considerable interest; to which must be added, that afforded by local connexion, and the more extended considerations which relate to climate.

Notwithstanding these advantages, it is necessary that the introduction of plants into the picture should appear quite easy and natural. In the accomplishment of this, much will depend upon the foreshortened appearance of the leaves, which should be regulated by the supposed distance of the objects composing the foreground, from the observer. Another difficulty is, to render the sort of confusion which seems generally to prevail amongst objects of various kinds, growing or thrown accidentally together, and to preserve, at the same time, that simplicity which is never entirely wanting, even when objects are in appearance mingled together in the most capricious manner.

It is not by adding promiscuously, and without choice, to the number of objects, that the irregularity and apparent negligence of nature are to be attained. Let the relative size and proportion of each be carefully preserved; and it may be well to bear in mind that, in nature, they come out one before another more or less conspicuously, not only according to their sizes, but also according to the nature of their colour, and their degree of exposure to light. The study of nature is more particularly required in this branch, since the memory ill retains the characters of objects too little important in themselves to engross any great share of attention.

Trees and other objects which stand near the corner of a picture answer the purpose of a frame, to the portion which they encompass, adding depth and distance to the objects there situated; and although a tree stuck in the corner of a picture to this effect would be a decided mark of bad taste, still the plan of placing trees on the side, rather than in the centre, cannot be always objected to, upon the ground that, in nature, they are dispersed irregularly, as accident may happen. When sketching from nature, you would avoid placing yourself in such a position that trees or any other such objects would intercept the main and most attractive vista; you would rather shift about from one spot to another, till these objects of the foreground would appear on the side, and thus encompass the view rather than conceal it.

Considering how much the tools and various implements of husbandry are connected in their shape and construction with the manners and usages of the people, it is a matter of surprise that the picturesque appearance presented by such objects, when thrown negligently together, should not more frequently be resorted to, as it was by some of the Flemings, to cover the open spaces and naked walls, where farms and cottages are introduced.

The implements used in each country, more particularly those applied to draught, have some marked and distinctive difference. Such objects as these would lose the greater part of their interest if invented, and should therefore find their place amongst the stores of the sketch-book. Nowhere, perhaps, are objects of this class more numerous and varied in their construction, and more picturesque in their arrangement, than in the Swiss villages; but they are so completely local as to shape and use, that they could not with propriety be introduced into any other scenes than those which are decidedly Swiss. As to whether these scenes, animated by a robust and healthy peasantry, so truly national in their costume and in the expression of their features, and backed by objects exceeding all others in grandeur, are suited or not for representation in the classical style of painting, is a question, the decision of which would of itself involve no inconsiderable inquiry.

THE END.

London: Printed by George Barclay, Castle Street, Leicester Square.

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